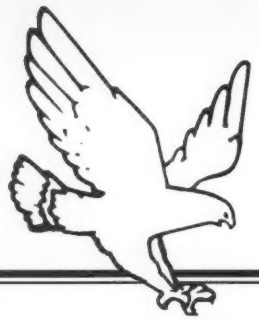
UNITED STATES ARMY

NOVEMBER/DECEMBER 1991

AVIATION DIGEST



AVIATION DIGEST

PROFESSIONAL BULLETIN

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Cover: **The theme for this issue is leadership. There is no substitute for well-trained, competent, and confident leaders who are committed to the defense of our nation. Our country absolutely needs the type of leadership that will preserve peace, win in combat, and meet the challenges victoriously of a complex, volatile, and unpredictable world. One such leader who has earned the reputation as a superb trainer, a pioneer of aviation, and the first Director of Army Aviation is featured in the lead article, "Hamilton H. Howze— Visionary Giant from the Past," which begins on page 2.**

Major General Dave Robinson
Commander, U.S. Army Aviation Center

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Warfighter 6

Major General Dave Robinson
Chief, Army Aviation Branch

Focus on Leadership

In the civilian world, some professions demand a comparatively high price—and for good reason. Doctors, for example, undergo years of intensive training that prepares them for the grave responsibility of preserving human life. Lawyers undergo training of similar intensity to defend our liberties and rights. As with other professions, we Army leaders also are schooled continually throughout our careers. Any similarities, however, between Army leaders and civilian professionals end here. With all their years of training, and all their experience, doctors operate on only one patient at a time, and lawyers try only one case.

Army leaders, even at the lowest levels, bear a sacred trust—the responsibility for the lives of dozens of soldiers, and the real potential to directly affect thousands more—at any one instant. Neither doctors nor lawyers practice their trade under the immediate threat of death. Certainly, few would seek the position of a combat platoon leader, whose average life expectancy during wartime usually can be measured in weeks. A vast gulf separates us from other professions. We must lead soldiers and perform complex tasks as a team, while exposing ourselves and our soldiers to the most hostile environment—the battlefield.

Warfighting is our mission. It comes with grave responsibility and considerable risk. And the simple fact is that few soldiers will follow, or fight for, a poor leader—an inept leader, a dishonest leader, an insincere leader, or a brutal leader. Only through application of the best possible leadership can the Army expect to generate the requisite combat power on tomorrow's battlefield.

Recent wars have shown the advantages of good leadership and the unmistakable consequences of poor leadership. Two examples of poor leadership on the battlefield are as follows:

- As the 24th Infantry Division approached Jalibah Airfield in Iraq, they noticed hundreds of disheveled Iraqi soldiers with bare, bleeding feet. Upon interrogation, the Iraqi soldiers revealed that Iraqi officers had cut the achilles tendons of their troops to prevent a "disgraceful" retreat. The same officers then fled north, leaving their crippled troops.
- During the Falklands War, the British captured thousands of young Argentinean conscripts but few leaders. The leaders had fled hours or even days before the fight, leaving corporals in charge.

Patterns such as these can be found throughout recorded history.

Leadership is the single most important dynamic of combat power. Good leadership is more important than materiel, more important than strict adherence to doctrine, and more important than the size and composition of a unit. While many aspects of leader development are quite structured, some dimensions are informal. Mature leaders have a responsibility to mentor and teach. Such interaction is often quite informal. Therefore, the process by which we develop leaders is subject to widely different interpretations.

We are making progress in defining the leader development process. Part of Fort Rucker's new

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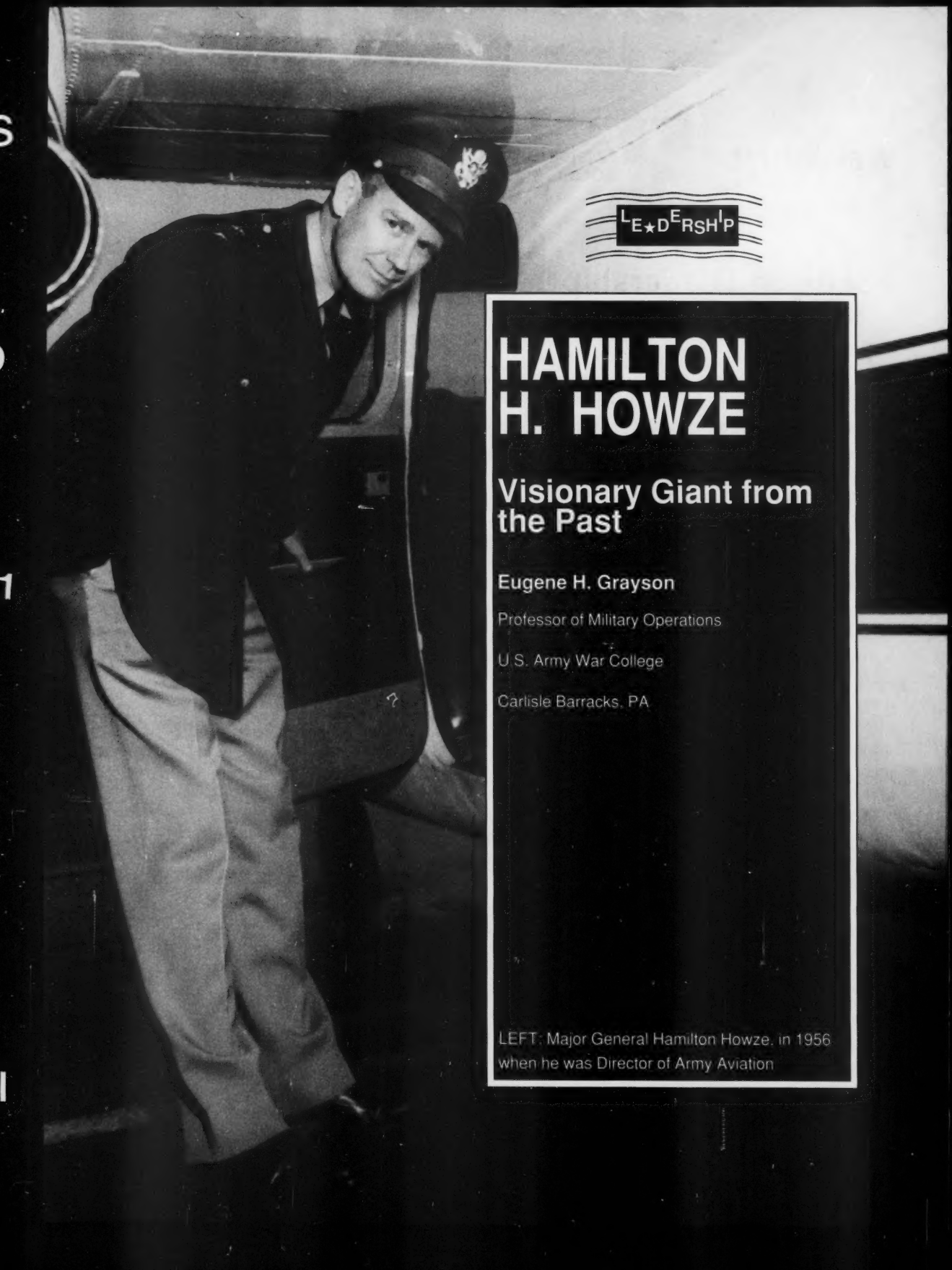


LEADERSHIP

HAMILTON H. HOWZE

Visionary Giant from the Past

Eugene H. Grayson

Professor of Military Operations

U.S. Army War College

Carlisle Barracks, PA

LEFT: Major General Hamilton Howze, in 1956 when he was Director of Army Aviation

"In the more distant future looms the probability of large, completely airmobile units—sky cavalry. The possibilities for its employment in the fluid phase of the ground struggle excite the imagination; as covering forces operating in front of heavier ground elements, protecting long, vulnerable flanks of the main forces of the field army, striking enemy formations from unexpected directions with maximum surprise. We are just beginning to investigate these ideas, haltingly, and with some trepidation, but with hope."

Major General Hamilton H. Howze
October 1957

THE SUPERB PERFORMANCE by Army Aviation units during the recent Gulf War unquestionably validated the above concept as envisioned by one of aviation's great pioneers nearly 35 years ago. Thus, this article focuses on the individual who possessed an unparalleled imagination and a strategic vision about the future role for Army Aviation on the modern battlefield.

Other key individuals were involved with developing, designing, testing, commanding, and fighting aviation units between 1957 and 1991. However, General Hamilton H. Howze's vision of more than a quarter of a century ago was the driving force behind the great accomplishments by aviation units during Desert Shield and Desert Storm.

Background

To set the stage for General Howze's long and lasting contributions to the doctrinal and conceptual future of Army Aviation, it is important to review the background of this distinguished visionary. Indeed, he conceptualized many of his views on the development, deployment, and mobility of Army Aviation long before he graduated from flight school.

Hamilton H. Howze was born into a military family, the son of a cavalry officer. His father, General Robert Lee Howze, previously had commanded a squadron in the 11th Cavalry at Fort Oglethorpe, GA. He later served as commandant of cadets at the U.S. Army Military Academy, West Point, NY, where Hamilton Howze was born. The family later moved to El Paso, TX, where the senior Howze took part in the Mexican Expedition. After that assignment, Howze's father was assigned to Fort Bliss, TX, where he commanded the 1st Cavalry Division and later sat as a board member at Billy Mitchell's court martial.

Schooling and First Assignments—1926 to 1938

Hamilton H. Howze entered West Point in 1926, the same year his father died. After graduation, he selected the Cavalry Branch as expected, and joined the 7th Cavalry at Fort Bliss. He later attended the Cavalry School at Fort Riley, KS. While a student, he was promoted to first lieutenant after 5 years in grade.

In 1936, Lieutenant (LT) Howze joined the 6th Cavalry Regiment at Fort Oglethorpe. He was assigned to A Troop initially, then later to Machinegun Troop.

Significant events. Two significant events occurred during this assignment: LT Howze's participation in the Civilian Conservation Corps, in his view the best national program ever designed for social relief; and the assignment of trucks, jeeps, and scout cars to horse cavalry units, which considerably enhanced their ground mobility.

Horse cavalry units. (To comprehend how powerful the proponents of horse cavalry were in the U.S. Army during the late 1930s is difficult today. Even after examining the results of early tank combat during World War I, only a few American officers, such as General George S. Patton, envisioned a force of that type playing a decisive role on the battlefield of the future.)

Later Assignments—1938 to 1942

In 1938, Lieutenant Howze was assigned to the Scout Cavalry Unit, 26th Cavalry Regiment, in the Philippines. Later as captain, he served as the regimental adjutant. He returned stateside in 1940, joining

the 3d Cavalry Regiment at Fort Myer, VA, where he commanded C Troop. After a follow-on assignment with the 9th Cavalry Regiment, and immediately following Pearl Harbor, he joined the 8th Armored Division (then commanded by Major General (MG) Orlando Ward) at Fort Knox, KY.

In 1942, Howze joined the 1st Armored Division at Fort Bliss as G3. He remained with the division all through the division's intensive training program at Fort Bliss, and in Ireland and England.

Wartime Assignments—1942 to 1944

He was with the lst Armored Division during its deployment to, and combat in, North Africa, including the battle at Sidi-Bou-Zid. In this battle German air superiority played a significant role in the Axis victory.

As commander of the 2d Battalion, 13th Armored Regiment, then later as commander of the 13th Regiment, Colonel Howze took part in the major Italian campaigns, including Cassino and Anzio. While he commanded Task Force Howze (attached to the 3d Infantry Division), his unit spearheaded the Allied drive north to Rome.

His final wartime assignment was as a combat commander in the Po Valley, Italy, in late 1944.

Other Major Assignments—1945 to 1954

At the end of the war, he returned to the Cavalry School as chief of the Tactics Department, later serving as the executive officer and director of instruction.

After his student year at the National War College in 1948, General Howze, briefly served on the General Staff's G2 Division. He was then assigned to Europe as assistant division commander, 2d Armored Division. In this position his reputation as a superb trainer began to flourish. From then on, training would be the major focus of his efforts throughout the remainder of his Army career.

After 2 years with the 2d Armored Division, he was assigned as chief of plans, and later chief of operations, Headquarters, Seventh U.S. Army, Europe.

First Director of Army Aviation

In February 1955, General Howze was assigned as chief of the Army Aviation Division, G3, Headquarters, Department of the Army (DA) Staff. In 1956, he became the first Director of Army Aviation. These assignments were made before he attended flight school.

During this period, General Howze made his first invaluable contribution to U.S. Army Aviation. His long years in the cavalry had convinced him of the absolute necessity for enhanced mobility on the battlefield. Although the helicopter was a recent innovation, he saw its unlimited potential as a combat multiplier.

Along with MG James (Slim Jim) Gavin, former wartime commander of the 82d Airborne Division, General Howze began to actively promote an increased role for Army Aviation. New concepts for the use of aviation in direct support of combat operations were included.

During General Howze's tour in the Army Aviation Directorate, new terms began appearing, such as *air mobility, sky cavalry, armed helicopters,* and *heavy lift helicopters*. His vision of where aviation could go on tomorrow's battlefield had no limits.

His dramatic memorandum of October 1957 discribed his concept and featured many bold ideas: aviation units enhancing rapid battlefield decisionmaking; surprise attacks; concentrating forces in the enemy's rear, using helicopters to conduct tactical movements to dominant terrain; using helicopters to move unimpeded over terrain obstacles; using armed helicopters in conjunction with armored forces during the offense and defense; and using airmobile forces to attack deep and hold terrain on the flanks and on deep objectives before linkup operations.

These new roles for Army Aviation soon reached key decisionmakers. Howze's bold and imaginative concepts resulted in more and more aviation units organized within the continental United States and abroad.

Division Commander, 82d Airborne Division; Chief, Army Advisory Group, Korea

From January 1958 to June 1959, General Howze commanded the 82d Airborne Division. He then went to Korea, as chief of the Army Advisory Group. While in Korea, General Howze presented his "bombshell memorandum" to the DA Aircraft Requirements Review Board (chaired by Lieutenant General Gordon Rogers).

The memorandum called for a new course of action on the modernization of conventional-type ground units; it called for developing a new type of fighting unit called *air cavalry*. This unit concept would take the maximum advantage of the unique mobility and flexibility of the helicopter.

General Howze advocated new weapons of destructive firepower, applicable on any battlefield and in any battle area. In addition, he called on an experimental air cavalry unit to test the feasibility of the airmobile concept, design materiel requirements, and generate interest and support within the U.S. industrial base.

More than any single action, this memorandum resulted in the beginning of Army Aviation as we know it today. Moreover, General Howze would ultimately play the integrating role in executing provisions of his innovative concept.

Commander, XVIII Airborne Corps

After his tour in Korea, he was briefly assigned as deputy commanding general, Continental Army Command. Then he took command of the XVIII Airborne Corps. While in that command position, General Howze continued to play his invaluable role in the future of aviation.

The Army Tactical Mobility Requirements Board. The Secretary of Defense selected him to head the Army Tactical Mobility Requirements Board. The Howze Board, as it came to be known, was tasked to reexamine Army Aviation by taking a "bold new" look at enhancing mobility in land warfare.

This board promoted a new concept, which was a quantum leap forward, to fully integrate the helicopter into ground combat. From this concentrated study came the elements that proved so invaluable throughout the war in Southeast Asia: the 11th Air Assault Division and many other aviation groups, battalions, and squadrons.

After the Vietnam conflict. Army Aviation's radical transition back to a more traditional role of supporting a mid-to-high-intensity war is well known. The various aviation unit reorganizations; new tactics, techniques, and procedures; and new models of helicopters with improved capabilities and weapons systems have all considerably enhanced the ground commander's ability to fight and win on the battlefield.

General Howze before he retired in 1965.

Persian Gulf War—Validation of General Howze's Vision

Nowhere was this more evident than during the Persian Gulf War when General Howze's vision of 35 years ago was unquestionably validated. In reading a multitude of aviation unit after action reports, the memorandum of 1957 prevails throughout each one in some fashion. Two such reports are shown at the right.

Other after action reports from the Gulf War were equally as significant as these two examples. Each involved decisive action. Each included such missions as flank protection, reconnaissance, deep strikes, anti-armor engagements, destruction of enemy artillery, holding terrain, deep linkup operations, severing key lines of communications, and cutting off enemy escape routes.

Conclusion

Many "giants" have been closely associated with the development of Army Aviation, which, in reality, began with the first light aircraft combat mission during World War II. Yet no single individual has contributed more than General Hamilton H. Howze.

Today's Army Aviation is unquestionably a vital and integral member of the ground commander's combat team. The vision for its role on the modern battlefield, so brilliantly foreseen by General Howze in 1957, was clearly validated in the Persian Gulf War.

After Action Report No. 1

After refueling from an earlier mission, the attack helicopter battalion was directed to conduct a cross forward line of own troops (FLOT) attack against two artillery battalions, supported by tanks, 60 kilometers (km) beyond the FLOT. The battalion had only 30 minutes to plan, brief, and launch against the units of the Tawakalana Division of the Republican Guards. Launch time was 1600 hours. The visibility was less than 1500 meters with blowing sand and dust. En route, the unit came across a retreating enemy column, suppressed it with 30mm cannon, and continued forward to the primary objective. Upon reaching the attack position, the targets were detected and the attack began against D30 howitzers, T55/T62 tanks, and numerous bunkers and personnel. A considerable number of tanks, howitzers, trucks, and armored personnel carriers were destroyed, and more than 400 prisoners captured.

After Action Report No. 2

Attack Helicopter Battalion occupied forward operating base (FOB) COBRA by 1100 hours, 27 February. They immediately received a change of mission and proceeded to FOB VIPER, some 180 km to the east. The attack battalion closed by 1700 hours. That evening the battalion conducted attacks to strike targets deep in Iraqi territory, 70 km northwest of Al Basrah, along highway 6. The unit then attacked into engagement areas north of Basrah to cut off the escape of Iraqi forces from the Kuwait Theater of Operations, thus concluding a hasty attack that was accomplished after moving over 450 km in 6 hours. The results were destroyed ammunition sites, enemy helicopters, vehicles, howitzers, and a pontoon bridge over the Al Hammar Lake. No combat losses were sustained.

LEADERSHIP

Rules to Assist Cavalry Platoon Leaders

Lieutenants, knowing how to train is paramount with today's limited resources, budget cuts, and personnel shortages. This article provides 10 simple rules for ground combat training and 3 basic rules to avoid the mistakes of new platoon leaders. Some of the rules were learned in actual combat by new officers at great cost–the loss of lives of soldiers for whom they were responsible.

Captain Steve Milliron

Captain Milliron was attending the Aviation Officer Advanced Course, U.S. Army Aviation Center, Fort Rucker, AL, in 1990 when he wrote this article.

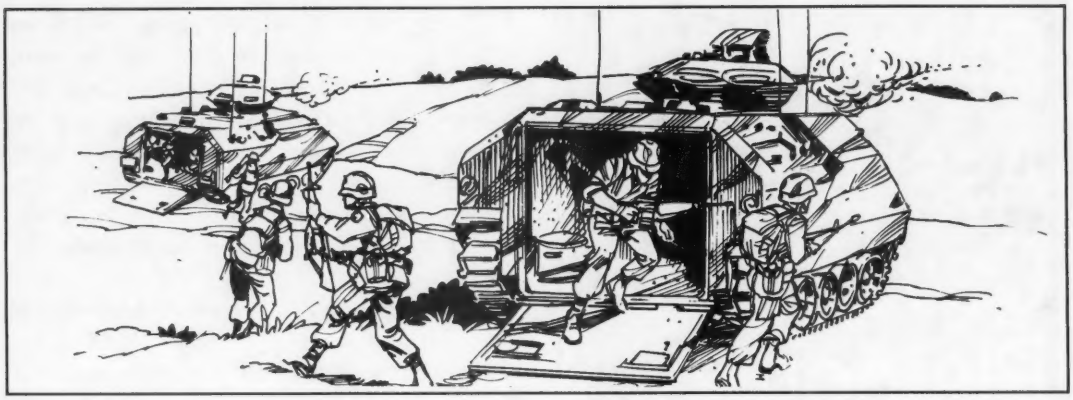
THE IMPORTANCE OF passing on lessons learned is not new to the U.S. Army. The use of the National Training Center, Fort Irwin, CA, and other training centers like it, is based upon the premise that we can learn from our mistakes. With the current state of world affairs, it may not be possible for new officers to learn from their mistakes without causing the loss of life of soldiers for whom they are responsible.

The March/April 1988 issue of the ***Armor Magazine***, contained an article by Major (MAJ) Roger Cirillo titled, "Ten Commandments for the Small Unit Tactician." This article addresses what MAJ Cirillo considers 10 rules pertaining to training for ground combat. These perceptions, as he calls them, are an outstanding tool that a new officer can use to help avoid basic mistakes. The rules are as follows:

1. Adjust fire/open fire early.
2. Never break contact.
3. Maintain 360-degree orientation.
4. Expect casualties.
5. Reduce confusion.
6. Report!
7. Use drills/standing operating procedures.
8. Look both ways.
9. Be prepared to fight under nuclear, biological, and chemical conditions.
10. Understand the three Gs of ground combat: good ground; good gunnery; and good luck.

I, too, have my own perceptions for being a good leader. I developed them as a platoon leader and executive officer in a divisional cavalry squadron. I cannot attempt to replace MAJ Cirillo's effort; however, I would like to add three additional rules to his 10 commandments. I offer them, hoping they will assist all lieutenants about to embark upon leading their first cavalry platoon to avoid some basic mistakes.

Rules to Assist Cavalry Platoon Leaders



Take care of your soldiers and noncommissioned officers.

If you take care of your soldiers, they will take care of you. This is not a new idea, but is an idea that must be addressed because of its importance. Leaders at all levels have their own philosophy on what constitutes taking care of soldiers. They may all vary in one form or another, but the underlying bond in all leaders is they sincerely care what happens to soldiers and their families.

I would like to paraphrase some thoughts from an article. Brigadier General (BG) John C. Bahnsen (Retired) and Captain (CPT) Robert W. Cone wrote the article that appeared in the July/August 1987 edition of ***Armor Magazine*** titled, "Some Thoughts On Taking Care Of Your Soldier."

Why should you bother to take care of your soldiers?

Taking care of soldiers is a long-term investment that pays off. It pays off in peacetime when your soldiers realize you really do care about them. It is important to you that the mission is accomplished the "right" way.

The payoff comes in strange ways, sometimes it occurs when your unit does much better on a gunnery or an Army Training and Evaluation Program (ARTEP) exercise than you expected. The payoff may come from offhand remarks you hear in the battalion or in the way your soldiers respond to you. Sometimes the payoff comes in a more formal way, like soldiers asking you to reenlist or promote them, or receiving a Christmas card from a soldier who was in your unit several years ago.

Second, and most important, caring about your soldiers in peacetime shows them that you will care about them in combat. If you are willing to set the example for your soldiers by leading them at the front, you are saying, "I care about you, and I'm not going to let you do something I would not do"; you should be successful in combat. Caring for your soldiers is harder in peacetime than it is in wartime. If you learn to sincerely care about them in peacetime, combat will be much easier.

Taking care of soldiers encompasses setting and enforcing high standards, training to standard, ensuring your soldiers receive adequate dental and medical care, checking to ensure issue of properly fitting and serviceable clothing, and recognizing when your soldiers have done a good job. As the authors above state, "taking care of soldiers is a concept that is long on good intentions and short on specifics."

Maintain control.

This is perhaps the most important rule for the platoon leader. I shall address it in two parts. First, it is critical that the leader, and subordinate leaders, display a high level of self-control. In many ways, the

self-control demonstrated by the platoon leader, platoon sergeant, and squad leaders can make or break a platoon.

An example of self-control is communicating effectively on the radio during a critical portion of an ARTEP. The net effect of speaking on the radio in a clear, confident, and professional tone under the worst of circumstances has an incredibly positive effect on the soldier on the other end and helps him balance his emotional reaction to a tense situation.

Without a doubt, your ability to maintain a cool head in difficult situations (in which you will find yourself daily) aids your subordinates' ability to focus their attention on the task at hand. Leaders cannot allow events or a sudden change of mission to overcome them. Nothing is more evident to the soldier than when a situation is out of hand.

Second, the leader must control his platoon. He must be involved in every detail and understand the real situation. Assumptions or suppositions are great downfalls. Hard facts and pertinent details are sometimes tough to come by, but help the leader make informed, rational decisions. Informing and checking on subordinates ensure their understanding of the mission.

Nothing is worse than having to pay for the same piece of ground twice because someone did not understand his orders. The leader has no greater responsibility than this.

Make training happen.

Training is the sole element in peacetime that endows our longevity in battle: shooting a rifle, loading a machinegun, making a range card, throwing a grenade, rigging a ring main, and crew drills. The bottom line is putting steel on target. Find a way to make training your top priority. Eliminate those daily distractions that continually prevent you from conducting your training. Make training happen!

Training success at squad, section, and platoon level depends on three things: your ability to set time aside for training, the quality of your individual training program, and your ability and the ability of your junior leaders to collectively train your platoon. Make the quality of training your responsibility. If you or your junior leaders cannot conduct training to standard, you will have soldiers that are not meeting the standard.

This leads me to my final comments on training. Set and enforce high standards. Set standards for your platoon that are attainable with hard work and determination. Do not cut your soldiers short on what they are capable of achieving. Finally, demand that your subordinates enforce your standards at all times. When they do not, it is imperative that you take corrective action. This will reaffirm your desire for maintaining high standards.

You are about to begin one of the most rewarding and trying periods of your Army career, and I envy you. With the upcoming budget and personnel cuts, your job becomes significantly more important and complex. Knowing how to train with limited resources is a challenge. This article was written with those difficulties in mind.

Besides MAJ Cirillos's article and that of BG Bahnsen and CPT Cone, I suggest you obtain two additional references: "On Being A Lieutenant" by CPT Richard D. Hooker, ***Infantry Magazine***, November/December 1985; and Fort Knox Supplementary Material, Pamphlet 37, *Notes on Building the Chain of Command at Unit Level*, by Lieutenant General Walter F. Ulmer. I wish you good luck.

LEADERSHIP

Hi-Tech Officers–Asset or Liability in Combat Leadership?

Should a combat leader spend more time with his troops and less time obtaining a formal education? Do overly zealous efforts to achieve higher qualified officers inadvertently make them more conformist and less audacious? Is a leader dependent on his group? The author stimulates thoughts on these questions and analyzes a current trend which, he asserts, is having a damaging influence on combat leadership.

Lieutenant Colonel Mohammad Azam

LTC Azam was attending the Aviation Officer Advanced Course, U.S. Army Aviation Center, Fort Rucker, AL, in 1990 when he wrote this article.

THE POST-WORLD WAR II era has witnessed a strong surge by all armies to increase the intellectual level of their officers. This is especially true of the officers at junior command level; i.e, company, battalion, and brigade.

This obsession has led almost all armies to overqualify these midcareer officers in a variety of combat-related and noncombat-related disciplines. It is not uncommon to find a large number of officers well versed in various foreign languages, knowledgeable of the doctrine of other armies, and feeling at home with high-sounding strategic and theater maneuver concepts. This ensuing trend has both its strong supporters and ardent nonsupporters. The author examines the advantages, and highlights the pitfalls and disadvantages, to which this trend is leading armies. He analyzes the effects of the current trend of overqualifying the officers vis-à-vis the combat efficiency of units. He develops this analysis first by determining established leadership traits and qualities. Then he matches them with the products of overqualification. This match, or comparison, vividly clarifies how useful or damaging the current trend is.

Desired Qualities and Traits of a Combat Leader

The most desired qualities of a *combat* leader, as distilled from the writings of many famous military theorists, are courage; job competence/military knowledge; knowledge of his or her men; battle endurance, mental and physical; capacity to influence his or her men; and boldness.

Current Qualifications Trend—Advantages

Besides completing the basic, advanced, command and general staff, and war college courses, an officer moving in the fast promotion track has ample opportunities to collect or add up a couple of university degrees; for example, a masters in business administration and in international affairs; and to learn several foreign languages.

This trend results in continuous professional growth of officers on par with civilians. An air of contempt was on the increase among civilians, who considered

army officers as semiliterate. Attainment of university degrees by army officers arraigns them at par, and the negative tone of becoming underconfident is arrested.

The logic behind this advantage is understood, but it certainly does not help in increasing the combat efficiency of a unit or office. At the lower levels of command; i.e., company, battalion or regiment, however, such knowledge is often superfulous.

Current Qualifications Trend—Disadvantages

Decreases time with troops. Overqualification robs officers of a very important asset—time with troops. The result of an officer's spending years away from his unit in a civilian university is lack of knowledge of his or her troops.

General William T. Sherman said, "The regiment is the family. The colonel, as the father, should have a personal acquaintance with every officer and man, and should instill a feeling of pride and affection for himself so that his officers and men would naturally look to him for personal advice and instruction."

General Omar Bradley said, "The greatest leader in the world could never win a campaign unless he understood the men he had to lead."

This understanding of men comes not from any university degree, but by spending time with men. Officers, having stayed away from units on instructional staff or for formal education, develop a certain kind of shyness and are unsure of themselves in front of men.

Weakens team spirit. The trend towards higher qualifications and "ticket punching" leads officers to unhealthy competition. This also makes the officer too individualistic and elitist in approach and defeats the whole sense of team spirit. Lord Moram, in his famous book ***The Anatomy of Courage***, explains group belonging as one of the basic pillars by which fear is conquered by men in war.

Inculcates timidity. The U.S. Army policy of "up or out" forces officers to become more conformist and avoid mistakes. Similarly, the long struggle to achieve higher qualifications inadvertently makes an officer more conformist and less audacious.

This trend is something very natural and understandable. The officer, having collected a long list of qualifications, starts seeing better assignments and promotions as mere acts of time. He starts hating to make waves or annoy his immediate seniors by disagreeing with them. He tends to become a yes man and is no longer bold. His initiative is blunted by an overcautious attitude. He does not want to make a mistake, and towards this end, assumes a low profile.

> *"It is generally believed that we need enlightened and responsible leaders—at every level and in every phase of our national life. But the nature of leadership in our society is very imperfectly understood."*
>
> John W. Gardner

Daniel Defoe is credited with an apt axiom, which goes like this, "It is better to have a lion at the head of an army of sheep, than a sheep at the head of an army of lions."

General George S. Patton Jr. also highlighted the importance of boldness when he said, "There are only three principles of warfare—Audacity, Audacity, and AUDACITY."

Decreases combat experience. The large variety of disciplines and fields that are now available for officers in most armies makes it likely that most of these officers may not be available for combat. It also is an established fact that there is no substitute for war experience.

General Maxwell D. Taylor said, "Military men who have spent lives in the uniform of their country acquire a unique experience in preparing for war and

in waging it. No theoretical studies, no intellectual attainments on the part of the layman, can be a substitute for the experience of having lived and delivered under the stress of war."

Lowers endurance. An officer having followed an intellectual, but softer, route by attending civilian universities or performing instructional or extraregimental duties is likely to be much less robust as compared to another officer who spends more time with the regiment.

General Napoleon Bonaparte laid great emphasis on physical conditioning of his troops when he said, "The first quality of a soldier is constancy in enduring fatigue and hardship. Courage is only the second. Poverty, privation, and want are the school of the good soldier."

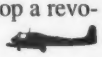
Lowers capacity to influence. Elmar Dinter, in his book ***Hero or Coward***, discusses the qualities of a competent *combat* leader and concludes that "The leader is to a certain degree dependent on his group. Hence it is important on the one hand that he understands the group and its members, and on the other hand that he can effectively exert his influence. This can be achieved above all by providing information, by putting his points across by convincing speech or by example, by delegating tasks and by concern for welfare. He should make only reasonable demands on his group—unreasonable or incomprehensible orders lead to reluctance. Further the group must know that it can rely on the leader in any circumstance."

The question now arises, "How come a soldier (officer) with more qualifications often does not fit into this combat leadership picture?" The answer is simple and, to some extent, has already been pointed out in the earlier part of this article. The main reason why an officer usually more qualified doesn't normally do well in influencing his troops is because he stays out of contact. He fails to develop sensitivity to that frequency band essential to understanding his men. The system has not given him sufficient time with his troops.

Conclusion

The foregoing analysis leads us to conclude that higher qualifications, assignments, and exposure raise the intellectual level of officers. However, this trend runs tangent to the requirements of *combat* leadership. Armies in their pursuit to excellence have unwittingly adopted this approach, which is proving more harmful than beneficial.

Having determined the essential qualities of a *combat* leader, we have pitched these criteria to the effects of this trend under discussion and found that it carries a more damaging influence. All armies of the world have taken this highway leading to incompetency. There is still time since this concept is still in its infancy. As Adlai Stephenson said, "The time to stop a revolution is at the beginning, not the end."



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LEADERSHIP

Congratulations, Lieutenant, You Are the New Platoon Leader!

At the moment of arrival, an aviation lieutenant is the most inexperienced soldier in the platoon. Before long, the same person is one of the most experienced. What happened in between? Creditability, courage, and proficiency are part of the answer that helps the inexperienced soldier become experienced for platoon leadership, a most rewarding job in the Army.

Captain Pete Curry
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APO NY

WE HAVE ALL been there. You are a young, 23-year-old second lieutenant fresh from Fort Rucker, AL. You are aggressive and smart. The chances are good you are Regular Army and a distinguished military graduate.

You are highly motivated as you walk into your first assignment. As you meet your company commander, he tells you that you will be signing for the platoon next week.

Then it hits you. You are greener than the 5-ton truck parked outside. Doubts start to creep into that always squared-away mind of yours. Suddenly, beads of sweat begin to manifest themselves on your forehead. Your heart quickens its pace. You mutter the expected military responses to the commanding officer (CO), while your mind races towards the prospect of now being responsible for something.

Your subconscious begs, "Use a checklist...uh, what is the emergency procedure for being a platoon leader? Gawd! I knew I should have stayed awake during that block of instruction!"

Welcome to reality, lieutenant. You will not find any blocks of instruction entitled, "Platoon Leading 101." No checklists. No emergency procedures. Well, unfortunately, no magic articles, either.

This article introduces a commonsense method used by the Army designed to start you thinking about how to lead a platoon. The idea is to read the article, use what applies, and talk to your CO about parts you may not understand.

An aviation lieutenant is, at the moment of arrival, the most inexperienced soldier of the platoon. The aviation platoon leader is no different than any other Army platoon leader, except an aviation platoon leader leads fewer people than, say, the infantry counterpart. This is a mixed blessing. In a relatively small group, the platoon leader gets to know soldiers in detail.

Even the youngest private will know your degree of technical competence is relatively low. So how are you going to start to change this image? The following are some suggestions for changing your image.

Congratulations, Lieutenant

Establish your creditability. Since the soldiers know you are probably straight out of flight school, you should not try to hide things from them. If you do not know, ask a question. Better yet, ask it in such a way the person has to demonstrate his knowledge to you. Your most important asset is your ability to listen and learn.

Demonstrate what you know at the appropriate place and time. One example of establishing yourself early is to be prepared for the commander's evaluation flight. Your first flight with the instructor pilot (IP) should set the stage if you are prepared. The IP is looking for a sound, safe aviator who has learned the basics well and demonstrates the potential for learning more advanced aviation techniques.

You are the leader. Your soldiers expect you to act like one. You must first set the standard for personal conduct and professional bearing. All eyes are upon you. As Peters and Austin describe this in their book, ***A Passion for Excellence***—

"The (leader) is shockingly powerful. Remember when you were a nineteen-year-old on your first job. You darn well knew what your manager (who was probably all of twenty-two) ate, and when his eating habits changed. You were a manager-watcher par excellence. We all were. (Leaders) are powerful. People pay attention to...(leaders)."

You are in charge of a military organization, not a flying club. You may be friendly with the people in your organization, but they are not your buddies. Remember that fine line between being friends and being friendly. Everyone has a job. Your foremost responsibility is the platoon's mission.

I feel your ability to succeed as a platoon leader is directly related to your ability to grasp all the new concepts bombarding you. It is not what you know in the beginning, it is how much you learn.

Have courage. Rule number one. Do not vacillate. Make a decision and stick with it. Issue mission-type orders and make them as your own. Do not say, "The CO says that..."

Even though you may not agree with the CO, once the decision has been made, you are morally obligated to support the chain of command in front of your soldiers. If you are constantly undermining decisions, do not be surprised if your beloved soldiers start second-guessing you. It takes courage to issue unpopular orders.

Be technically and tactically proficient. The only purpose for the peacetime Army is to be ready to fight wars. You have to understand the unit's mission and how the unit fights. You must study doctrine, history, leadership, and your unit's standing operations procedures (SOPs). You have to do this on your own time. Once you do, you will begin to see a growth in your understanding of these subjects.

Focus on the platoon level. You must focus on the platoon as a whole. While it is true you have to know the individual tasks of your soldiers, you must emphasize the platoon. You must leave the actual execution of individual training to the people responsible for it.

Responsibility for individual training rests primarily with the NCOs for most skills and the instructor pilots for aviation-specific training. They will execute the training you plan for them, and they must be held accountable for the success of that training.

You also owe them the chance to get the job done. If you tell them the mission, they will figure out how to do it. If they keep you informed, and if you properly check without suffocating their training, they will exceed your expectations every time.

You get paid to plan and allocate the resources for training. Success depends on your ability to plan. No matter what distractors and roadblocks lag before you,

with experience you will have to anticipate things going wrong.

Check, check, check. The other part of allowing your subordinates time to train is to supervise them correctly. I am not telling you to give a person a mission and then let him go. What I am saying is you must periodically check on the progress of the mission.

You may be asking yourself, "0.K. How?"

Many variables exist. The biggest variable is you. You must train yourself to interpret factually all kinds of indicators. Unfortunately, you only become proficient at interpreting indicators over time.

Here is some good news, though. The ability to see and analyze things is a skill that can be learned through practice. To develop the skills, you must be prepared and work hard. Hit the books.

If you have vehicles assigned to the platoon, you must understand how to perform preventive maintenance checks and services on those vehicles. Just like your aircraft, you should get into the -10s of most of the major end items you are signing.

In tandem with your increasing knowledge of your craft will be your ability to ask the right questions. At first this will take time and a conscious effort on your part.

When you ask a soldier a question, ask in such a way to require more than a short "Yes, Sir." This should lead into the next question, "What are you guys doing about it?"

The answer, "We went over to technical supply. They do not have the part, but they are ordering it. We are going to check after lunch to make sure, sir."

Now, you have a lot more information. You know the crewchief knows the exact status of the aircraft, which means a training instructor has looked at it. You also know that aviation unit maintenance knows you need a part, and you know your crewchief has a handle on the situation. You also have something to do this afternoon, namely check on technical supply to make sure they order the parts.

Carry a notebook everywhere. You will never know when information will be thrown at you. The old adage, "A short pencil is better than a long memory," is still true even in the computer age. "Good poop" can come your way at any time, even in the mess hall or out on the flight line. You have to be ready. Just remember to review your notes daily.

In some section of your book, you should have essential information on each of the soldiers. I am not going to tell you what you need, but you should remember dates for physical tests, weapons qualification, or your officers' last efficiency report.

Know your supply requirements. Most supply actions at your level require correct inventories. Here are a few examples.

☐ Do not sign for anything you have not personally seen.

☐ Make sure you have correct paperwork before you inventory anything. Proper paperwork indicates the unit's expertise in property accountability.

☐ Every piece of Army equipment comes with a publication. The paperwork may be a technical manual or just a simple letter. During an inventory, make sure every piece of equipment has a current publication. Your commander can help.

☐ Make sure the training schedule includes the inventory. The inventory as a major event requires preparation and time. Take an inventory of all the like

items at the same time. The most common end item in an aviation unit is the mechanic's tool box. Take an inventory of them at the same time.

This not only saves time and speeds up the process, but your soldiers cannot "share" tools. You would be amazed at the number of shortages, because someone put certain tools in the "wrong" toolbox.

☐ Lay everything out in an orderly and uniform manner. The Army has a reason for "dress right dress." Anything missing immediately becomes apparent when everything is laid out.

Know your maintenance requirements. Let us review what you had at the Officers Basic Course. At your level, you have two types of maintenance, scheduled and unscheduled.

Scheduled. Any piece of equipment, from radios to aircraft, requires periodic maintenance at regular intervals. Know when these services occur and keep the commander informed. These scheduled services, which will take a piece of equipment away from you temporarily, may require your soldiers' time. Plan and try not to have long training events during maintenance checks. Before an item goes into a scheduled service, your platoon should perform a thorough equipment inspection. If you identify any deficiencies, try to fix them before the equipment goes into service. This will help turn that item back to you faster. You should also check to see if the needed parts are ordered in advance so they will be on hand when the maintenance section begins work.

Unscheduled. When an item breaks, it is unscheduled. This sounds simple, but a repair in a short time is the real trick.

The cornerstones of the Army maintenance system are the operator and the first-line maintenance personnel. If they are weak, then the whole program is weak. Spare no effort to improve the quality of your maintenance at this level.

As the platoon leader, know what is supposed to be done by the maintainers and operators. Learn to perform proper preventive maintenance checks on your equipment until you get the hang of it. That is really the best way to know if the operators are inspecting correctly.

Here's a maintenance checklist.

☐ All inspections require a book. If anyone looks at your equipment without the proper book, that individual should get one. No excuses.

☐ If a part is broken, check the paper audit trail. If supply personnel do not have the part, make sure they order the item and give you a document number. That means the part has been ordered, but you cannot stop there. Make sure someone periodically updates your records to see if the order is still valid. If it is not recorded, find out why.

☐ A similar system is used for work that cannot be accomplished by your soldiers and requires a higher level of maintenance. The deferred work is annotated on a document register. Usually the repair people cannot get to your work right away, so they will give you a work order number. Track that number the way you would track the parts.

Know about additional duties. Know the regulations that govern them. You must also know the additional duties of your subordinates. If you are having trouble finding out specifics of certain areas, then call your inspector general. This office will have subject matter experts to help guide you in the right direction.

Prepare for inspections. You must prepare yourself properly for this. You are on the other side of the fence now and you must know what to look for.

Depending on the inspection, you should probably ask the first sergeant for help. That person is usually the expert on such matters. You owe it to your soldiers to inspect properly.

Use proper formations. Field Manual 22-5 is the only reference. If you use it, you cannot go wrong. When the opportunity arises, use the formal, established standards.

One word of caution: there seems to be a generally accepted method of assembling large groups of officers in small formations. Refer to your unit's SOPs if this occurs.

Have your stuff together in drills and ceremonies. When you make a mistake, so does everyone else.

Remember payday activities. Many units still have some form of this traditional event, usually in the form of awards ceremonies. Even if your unit does not have one, you can still finish a lot of administrative items on these days.

The leave and earnings statements can help. When it arrives, sit down and open your notebook. Double check the officer or enlisted evaluation report deadlines, what awards need to be written, and counseling updates. This way, you can get all of this completed periodically. You will not waste time reacting. The main reason you should do this is to take care of your soldiers, your most precious resource. Never forget your soldiers. If you take care of them, they will take care of you and your mission.

Like it or not, all of this administration may not be fun, but it gets people paid and promoted. You stand a greater chance for allowing your people to succeed, if you can meet the suspenses.

Counsel. Here is a critical area often overlooked. You can be an effective leader if you use this tool to your advantage. Counseling allows you to do several things: convey your goals and desires; show the soldiers exactly what you expect; and help you set the record straight with your soldiers.

One may think the Army has a tendency to use counseling only in the negative sense. When a soldier makes mistakes and does not perform to a standard, we counsel that individual.

This should happen only part of the time. You need to counsel soldiers when they first arrive in the platoon and periodically throughout your tenure. They must always know how you rate their performance.

Most soldiers fail to perform well, because they do not understand the established standards. Formal counseling sessions establishes the medium to correctly define these standards for your soldiers.

Talk with your commander. He knows what you are experiencing. He has a vested interest in your success. One of his main jobs is to train you to perform better and, ultimately, to perform as commander in his absence.

Remember, he needs honest and open answers from you. Do not hold back telling him what you think. He may not always like it, but he needs to know the truth as you see it for the unit's good.

Set the example. Before making any on-the-spot corrections, make absolutely sure you have your act together. You can never be viewed as having a double standard. What is good for your soldiers is good for you.

If you do not remember anything else in this article, remember this: it is an honor and a privilege to lead soldiers.

However, this is not a "ticket punch" to get ahead. You must sincerely believe this, or you will not be worthy to lead anyone. Be a good platoon leader and everything else will fall in place.

Being a platoon leader requires effort and diligence. Nobody is going to lead you around by the hand; you have to be a self-starter to do the mission.

Hopefully, this article has stimulated thought on how you can become a better platoon leader. We have only scratched the surface of what it takes to be a good platoon leader.

Leading a platoon is one of the most rewarding jobs you will have in the Army. Make the most of it and good luck.

The Professional Non-Commissioned Officer

Civilian education through high school, or beyond, and intensive Army training through the Sergeants Major Academy—these are life experiences that enhance the leadership careers of professional noncommissioned officers (NCOs). Such civilian and military schooling, coupled with the NCO evaluation system, produce even more competent soldiers who possess a special leadership skill: the ability to train and develop other soldiers.

Captain Jennifer L. Peeples

Captain Peeples was attending the Aviation Officer Advanced Course, U.S. Army Aviation Center, Fort Rucker, AL, in 1990 when she wrote this article.

THE TITLE "professional" historically has included only commissioned officers. However, recent changes in the noncommissioned officer (NCO) education and evaluation system have forced a reconsideration of this view.

The NCO in today's Army, an officer in every sense of the word, deserves recognition as such. Yet many people in and out of the Army continue to draw a sharp line between commissioned officers and noncommissioned officers.

Why this narrow view?

An investigation into the concept of professionalism reveals NCOs do, indeed, meet the requirements. In his book, ***The Soldier and the State***, military sociologist Samuel P. Huntington defines a profession in terms of three characteristics: *expertise*, *responsibility*, and *corporateness*. How these characteristics apply to NCOs today is the focus of this article.

Expertise

Professor Huntington defines expertise as the possession of a specialized knowledge or skill acquired through a prolonged period of experience and education. What is the special skill of the NCO? It is training and developing soldiers.

The NCO is concerned with every facet of a soldier's welfare. While many NCO skills overlap those of the commissioned officer, the two are not interchangeable. The NCO occupies a unique place in the military hierarchy.

The special abilities of NCOs are developed through a combination of experience and a comprehensive, progressive educational process. This process, which is very similar to that of commissioned officers, consists of two phases as follows:

The first phase involves a broad, educational curriculum. This means a high school diploma, but may include college.

The second phase, which is technically oriented, begins with the Primary Leadership Development Course and ends with the Sergeants Major Academy.

Any legitimate claim to expertise in a field requires an objective means of measuring competence. The use

Changes in the education system have solidified the professionalism of today's noncommissioned officer.

of the NCO Evaluation Report helps to evaluate NCOs. However, promotion boards offer another less obvious means of measuring competence.

NCO promotions are based not only on evaluation ratings, but also on experience and completion of the educational requirements for advancement. An NCO's expertise is based on possession of a special skill, extensive education and experience, and objective evaluations of competence. These characteristics satisfy Professor Huntington's requirements for the possession of expertise.

Responsibility

The next discussion covers the concept of responsibility and how it applies to the Army NCO. The responsibility Professor Huntington mentions involves a contract with society. This social contract requires those who enter into it to work for something other than financial gain.

One look at a pay scale confirms that money is not an NCO's primary motivator. NCOs are not mercenaries who sell their services to the highest bidder. Furthermore, the monopoly of skills possessed by NCOs means they must perform unique NCO responsibilities when required by society, nor can NCOs go on strike.

The Army NCO has a responsibility to fulfill a social contract with society. This contract requires that NCOs not place financial gain above honorable service and that they perform their services when required by society. Clearly Army NCOs meet the requirements of Huntington's definition of responsibility.

Corporateness

Professor Huntington's third characteristic of a profession is something called corporateness. Our final discussion applies Huntington's concept of corporateness to the NCO Corps.

Corporateness requires members of a group to possess a sense of unity and consciousness as a group. Inherent in this is a high degree of self-regulation. All of these traits are evident in the NCO Corps. Rank worn on the uniform, an overt symbol of an NCO's membership in a select group, reinforces this group consciousness.

In addition, group unity is fostered by membership in NCO clubs and professional organizations. NCOs as a group are highly self-regulating, sometimes more so than commissioned officers.

One example is the NCO promotion system: already advanced NCOs screen and select other NCOs as candidates for advancement. The traits of the NCO meet Professor Huntington's concept of corporateness: group consciousness and a high degree of self-regulation.

Conclusion

The NCO, very much an officer in today's Army, is entitled to recognition as a professional. Recent changes in the NCO education and evaluation systems have served to solidify the NCO's status as a professional. These changes are evidence of the self-regulating nature of the NCO Corps and its commitment to honorable, exemplary service.

Redefining the Aviation Liaison Officer

The liaison officer is a key figure in Army Aviation. He must possess many qualities and skills to be an effective asset. We, in Army Aviation, can no longer afford to devote minimal effort to our liaison requirement if we hope to maximize our contribution to the combined arms team. Further development of this important position is vital to our success in the future.

Captain Rodney Smith

Captain Smith was attending the Aviation Officer Advanced Course, U.S. Army Aviation Center, Fort Rucker, AL, in 1989 when he wrote this article.

LIAISON OFFICER (LNO): that thankless duty that every lieutenant or warrant officer dreads when it comes time to deploy to the National Training Center, Fort Irwin, CA; the Combat Maneuver Training Center, Hohenfels, GE; or the Joint Readiness Training Center, Fort Chaffee, AR. And with good reason. The hours are long, the rewards practically nonexistent and, worst of all, the job allows for little to no flight time. No sane young aviator would want to give up his seat in the cockpit for the job.

The LNO is one of the most important command and control tools the aviation commander has at his disposal. For, the most part, we have set ourselves up for failure by assigning the position either to the most junior and inexperienced lieutenant in the unit, so he can "pay his dues," or to a grounded pilot, so we can "fill the requirement" without degrading our own capability.

Given our current doctrine of AirLand Battle Operations and the necessity of fighting as part of the combined arms team, we no longer can afford to take the LNO position lightly. The increasing complexity of our weapons systems, coupled with a fluid and dynamic battlefield, tests the mettle of all soldiers. With this in mind, let's rethink the LNO in terms of the qualifications he must possess, the mission he must perform, and the tools he needs to perform it.

The LNO's Qualifications

First and foremost, the LNO needs to be smart in combined arms tactics. He needs to understand how ground maneuver units fight; how fire support, close air support, engineers, and all the other combat multipliers, fit into the picture; how combat support (CS) and combat service support (CSS) sustain the fight; and, finally, how aviation integrates itself into the battle.

He needs to be intimately familiar with the current doctrinal employment of combat, CS, and CSS assets without becoming a slave to that doctrine. What does

this mean? It simply means he must be creative and innovative in applying doctrine to certain situations and not accept the written word as gospel but as a guideline.

His field library also must be extensive since he must provide technical data on all aircraft available to the brigade he supports. These data could range from station time and weapons loads for AH-1 Cobras to lift capacities for UH-60 Black Hawks and CH-47 Chinooks. In addition, he will have to match the capabilities and limitations of available aircraft to the tactical situation to best integrate aviation into the ground commander's scheme of maneuver.

The LNO must be a shrewd and tactful salesman. He must establish himself as a knowledgeable, straightforward aviation expert. He must extol the capabilities of Army Aviation; however, he must not oversell it as the savior of the modern battlefield. Overselling has gotten us into trouble in the past. ("What do you mean the Cobra cannot take out dug-in tanks, lieutenant?!")

He must establish his credibility and competence with the ground brigade early. Perception is reality, my last battalion commander told me. My own experience as an LNO bears this out. A ground commander would trust his own experience in handling aviation rather than the advice of an LNO who does not appear to know that he is doing.

Last, the LNO must be forceful in ensuring that aviation is totally integrated into the scheme of maneuver, not merely as an afterthought. For example, an attack helicopter battalion (ATKHB) operational control (OPCON) to a ground brigade should be included as a combat unit of that brigade with specific missions to accomplish. The ATKHB should not be merely a fire support asset to be included in an annex to an operations order.

It becomes obvious the practice of using junior and inexperienced lieutenants and warrant officers as LNOs is counterproductive. It hampers the integration of aviation as a viable member of the combined arms team.

The LNO's Mission

In the past we used the LNO exclusively as a communications link between the OPCON aviation unit and the supported ground brigade. While this role must continue, it needs to be expanded. The LNO can provide a vast amount of information to his unit simply by virtue of his location in a brigade command post. For instance, how many times has an aviation battalion S-2 needed intelligence updates for planning future operations and been unable to obtain the information through normal intelligence channels? The LNO is tied in with all the intelligence assets the ground brigade has under its control and can deliver necessary information rapidly. He also can provide warning orders of impending operations to give his unit maximum planning time and coordinate for any support that his battalion requires.

With the Army of Excellence force structure, we lost some of our ability to conduct continuous planning for future operations. The LNO can help fill this gap by getting in on the early stages of planning at the ground brigade command post. He must ensure aviation is integrated into the tactical plan from intelligence preparation of the battlefield to course of action development to production of final operations order.

His knowledge of combined arms tactics will help him advise the brigade planners on how to make aviation a productive part of the team effort rather than a separate, nebulous entity. In his capacity as a planner, the LNO also will act as a filter. Since he is located with the brigade planners, he can head off any potential problems he sees in the plan before the final product is produced and sent to the aviation battalion. Being attentive to any possible misuse of such a critical asset as aviation will save valuable time later.

Since the LNO probably will be the sole aviation representative at the ground brigade, he is going to

have to deal with all types of aviation operations, not merely those of his parent unit. For instance, I was assigned to an ATKHB; however, as LNO I also had to help plan and coordinate aerial resupply, air assault, air movement, medical evacuation, and Army aviation command and control. The more the LNO knows about these operations, the better he will be able to serve both the ground force and the aviation brigade.

The LNO's Tools

Anyone who has ever been an LNO remembers the support received from his or her unit to conduct the mission. Usually, the LNO is given a vehicle and driver. Hopefully, the driver knows how to set up a radio antenna. More often than not the LNO knows more than the driver does. The LNO may never know if his secure radio is going to work properly or if he has enough wire to remote into the brigade command post.

Further, ground commanders want to get the most out of aviation. With the wide variety of aviation missions the LNO may have to plan and coordinate, burnout becomes a problem. To make matters worse, there was, and still is, only one LNO assigned to an aviation battalion, which means long hours in the field. See Table of Organization and Equipment (TOE) 01386L200, Headquarters and Service Company, Attack Helicopter Battalion (ATKHB) (AH-64 Apache), 11 Jan 1988, paragraph 04, line 04. The round-the-clock fighting capability provided by the introduction of the AH-64 Apache and the OH-58D Kiowa even more taxes the LNO to his limits.

My favorite "war story" was the time I spent 42 hours awake doing plans, coordination, et cetera, in a brigade tactical operations center (TOC), finally crawling into my sleeping bag because I started speaking some language no one else could understand and drooling uncontrollably, and then being shaken awake 30 minutes later by the brigade chemical officer because the S-3 wanted to talk about joint air attack team.

A must-have list of equipment for the Aviation Liaison Officer

This list can be modified to accommodate specific missions or geographic locations.

- ☐ **Commercial utility and cargo vehicle/high mobility, multipurpose wheeled vehicle with secure freqency modulation radio.**
- ☐ **RC-292/OE-254 antenna.**
- ☐ **AN/GRA-39 remote with headset.**
- ☐ **1 reel of WD-1 wire.**
- ☐ **Hexagonal tent with space heater.**
- ☐ **Camouflage screen with supports.**
- ☐ **Applicable publications.**

To counter this problem, I recommend that a liaison team be formed. This team would consist of a captain, an advanced course graduate; a lieutenant, who would work the opposite shift in the command post; and a driver, who holds a communications military occupational specialty. The advantages of this team are numerous. The team would offer 24-hour liaison capability, combined arms tactics expertise and experience, technical knowledge, and credibility with the ground force. Besides, this team would have the capability to handle problems with its communications equipment. The biggest disadvantage would be that the team would have a profound effect on the aviation battalion's own operational capability. Until a change to current TOE is made to accommodate the addition of a second LNO, the battalion will have to choose whether or not it can afford to form such a team.

In terms of equipment, the LNO needs to have a reliable package that can be set up and moved quickly. I recommend the equipment listed above.

LEADERSHIP

Integrity In Today's Officer Corps

Webster defines integrity as an uncompromising adherence to a code of moral, artistic, or other values. Although easy to define in the classroom, integrity easily may be compromised in day-to-day work situations. Without integrity in our officer corps, however, the moral fibers that hold our country together are severely jeopardized.

Captain Lary P. Dorsett

Captain Dorsett was attending the Aviation Officer Advanced Course, U.S. Army Aviation Center, Fort Rucker, AL, in 1990 when he wrote this article.

A CADET WILL NOT LIE, cheat, or steal, or tolerate those who do. The U.S. Army Military Academy at West Point, NY, has been building Army officers on this simple phrase for over 150 years. Integrity is the value highlighted in this code. The officer corps is built around integrity, whether the officers are commissioned through the U.S. Army Military Academy, Reserve Officers' Training Corps, or Officer Candidate School.

For the officer corps to continue to function as a professional body, integrity must continue to be taught and be strictly enforced. Failure to do so will lead to the end of the officer corps as a body worthy of trust and confidence.

In a classroom environment, integrity is easy to define and its absence easy to identify. In the "real world," things are not that simple. Other values sometimes compete with integrity to create what those in the classroom call a "moral dilemma," i.e., having to choose between two equally important yet competing values. In addition, the real world throws in one other obstacle the officer does not encounter in the classroom—the "can-do" attitude.

A positive attitude is not bad or even unhealthy. The problem arises when the can-do attitude overrides one's integrity. It is easy to say that one should do or say what is truthful and honorable. In real life situations, the answer, unfortunately, is not always so clear.

Consider the dilemma faced by a maintenance officer completing his monthly Department of the Army Form 1352. The pressure to achieve the desired 70 percent fully mission capable standard is sometimes strong enough to cloud even the best officer's judgement. The belief that this is only one little white lie, or it will not happen again, is wrong! Once an officer has acted dishonorably, no matter how trivial it may seem, he has made it easier for himself to do it again. Next time it might be on a larger scale.

Instances of breaches of integrity are found far too often throughout the officer ranks. Examples might be as follows: the brigade commander relieved for misappropriation of funds or sexual harassment; or the primary staff major who ordered the headquarters and

headquarters troop company commander to give him a passing Aptitude and Performance Flight Test score, when he never even took the test.

A favorite example among newly promoted aviation captains is the story about the Branch manager who told them that a new directive calling for an additional year service commitment after completion of flight school did not pertain to the Brown Flight class of 86-2. Then 4 1/2 years later, numerous captains who decided not to make the Army a career found out that they were either misinformed or "flat out" lied to when they had to serve a year longer than their planned resignation date.

When an officer has lost his integrity, he has lost his ability to trust his subordinates' honesty. He thinks that, if he tells white lies, surely everyone else must lie also. These beliefs lead to lowered expectations and lessen the chances that the officer will trust his subordinate officers.

This may lead a senior leader to send "spies" from his headquarters to keep tabs on his subordinate commanders. Checking up on subordinates is nothing new in the Army; commanders at all levels do it. The problem occurs when subordinate officers are continually being checked on. If these junior officers discover that they are constantly being checked, they resent their commander for not trusting them. For young officers who live by their word, this mistrust can be devastating.

In the end, these subordinates become disgruntled, production decreases, and disloyalty to superiors ensues. All these negative things occur because the commander assumed that his subordinates' values are as nonexistent as his own.

Commanders at all levels are responsible for their unit's overall honesty or lack of honesty. Commanders set the tone for what will, and will not, be tolerated. If a commander assumes command with a "perform at all costs" type attitude, he is secretly saying, "Do whatever it takes to make it happen." This is extremely dangerous. The successful commander is the one who inspires his troops to make it happen. Making things happen should not be at the price of pressuring subordinates to write, say, or do things they know they should not.

Counseling, combined with officer and noncommissioned officer (NCO) professional development classes dealing with values, is key. By talking values with young officers and NCOs, the commander emphasizes that the values courses taught at the Officer Basic Course and Warrant Officer Course, and in advanced individual training do not apply in the classroom environment only.

Commanders must reemphasize that integrity and other values are every bit as important in the "real Army" as in the classroom. After key leaders have been briefed on honesty and truthfulness, new leaders in the unit should be counseled as they arrive.

Once counseled, those who perjure themselves in word or deed should be corrected swiftly and fairly. Policy letters that are directed to all members of a command make those officers who live by their word feel that their word does not mean much to the boss. Individual perpetrators should be the target for discipline. Honest officers should be excluded from the disciplinary action and left to do their jobs.

Integrity is a value we in the military do not dare to take lightly. Its presence is the glue that holds the officer corps together as an honorable and professional institution. Its absence makes us just a group of people lacking direction or principles.

We must take an objective look at ourselves and ensure we are living up to the standards set by previous generations of officers. Only through our complete honesty can we expect our soldiers to act likewise. Today's soldiers are far too intelligent to be fooled by false words or dishonorable intentions.

Only by maintaining the highest standards of conduct can we expect our subordinates to act likewise. And only by this continued honorable conduct can we hope to maintain the trust and confidence of both our chain of command and the American people.

Lieutenant Colonel W. Larry Dandridge (Retired)
Former Chief
Aircraft Logistics Management Division
Directorate of Logistics
U.S. Army Aviation Center
Fort Rucker, AL

World Record Apache Phase Inspections

Completed at U.S. Army Aviation Center

At about 2300 hours on 9 August 1990, the commander, 2d Battalion, 229th Aviation Regiment, Fort Rucker, AL, asked his aviation intermediate support commander, "Can you pull two AH-64 Apache helicopter phase maintenance inspections for me within 3 days?" (The regiment expected to deploy to Saudia Arabia on 12 or 13 August 1990.)

Subsequently, DynCorp, the U.S. Army Aviation Center's (USAAVNC's) maintenance con-

World Record Apache Phase Inspections

Phase Inspection Maintenance Team 1

tractor, completed two AH-64 phases, setting two new unofficial world records. These records were accomplished in 40 and 44 hours, respectively.

Thirty aircraft maintenance contractor employees—two teams of 15 workers each—took 1.6 days or 40 hours to complete phase 2 on the 1986 Apache, Model 86-8995. (A total of 652.4 man-hours, including 391 hours of overtime, were expended.) This effort set the World's Record on Apache Phase Maintenance.

FIGURE 1: USAAVNC AH-64 phase effort summary

TEAM MEMBERS	MAINTENANCE MAN-HOURS REQUIRED	AVERAGE DAYS TO COMPLETE PHASES 2 & 4
1 lead person	1 X 8 days X 8 hours per day = 64 man-hours	
1 records clerk	1 X 1 1/2 days X 8 hours per day = 12 man-hours	
6 mechanics	6 X 8 days X 8 hours per day = 384 man-hours	
1 sheet metal mechanic	1 X 8 days X 8 hours per day = 64 man-hours	
1 avionics technician	1 x 8 days X 8 hours per day = 64 man-hours	
1 1/3 armament mechanic	1 1/3 X 8 days X 8 hours per day = 85 man-hours[1]	
1 industrial cleaner	1 X 1 day X 8 hours per day = 8 man-hours[2]	
1 technical inspector	1 X 8 days X 8 hours per day = 64 man-hours	
13 1/3 total people	745 total man-hours[3]	8 days[4]
2 test pilots	2 X 2 days X 4 hours per day (2 hours ground and 2 hours air) = 16 man-hours[5]	
1 flight mechanic	1 X 2 days X 1hour per day = 2 man-hours	
	745 + 18 = 763 man-hours	

1 Actually use 4 armament mechanics to do 3 simultaneous phases.

2 The industrial cleaner supports a large maintenance area, which includes much more than just the phase team and the phase effort.

3 Includes work above and beyond the phase requirement, including modification work orders, minimum deferred maintenance, and technical bulletins (approximately 260 man-hours).

4 It takes from 5 to 14 days to do a phase at the USAAVNC. Phases 1 and 3 are simpler and normally take only about 5 days to complete.

5 Ninety percent of the test flight is ground time with auxiliary power units (APUs) and ground maintenance operational checks (MOCs).

Phase Inspection Maintenance Team 2

Phase Inspection Maintenance Team 3

At the same time, a second group of 30 aircraft maintenance employees worked in two teams on two shifts 1.8 days (44 hours) to complete phase 2 on the 1986 Apache, Model 86-900l. (A total of 662.3 man-hours, including 420 hours of overtime, were expended.) This inspection resulted in the honor of being runnerup to the World's Record of Apache Phase Maintenance.

FIGURE 2: Phase inspection at Fort Rucker

TYPE OF PHASE	TIME TO COMPLETE
AH-64 PHASE INSPECTION SCHEDULE: 2-shift operation 4 days in phase hangar 1 day to perform engine wash and hot mock-up power on 3 days functional test flight	8 days from drop to flyable [800 man-hours]
UH-1H PHASE INSPECTION SCHEDULE: 2-shift operation 1 day wash 1 day phase 1 day functional test flight	3 days from drop to flyable [160 man-hours]
AH-1 PHASE INSPECTION SCHEDULE: 2-shift operation 1 day wash 2 days phase 1 day functional test flight	4 days from drop to flyable [675 man-hours]
UH-60 PHASE INSPECTION SCHEDULE: 2-shift operation 2 days wash and disassembly 5 days phase 3 days maintenance operational check and functional test flight	10 days from drop to flyable [900 man-hours]
OH-58 PHASE INSPECTION SCHEDULE: 2-shift operation 1 day wash 2 days phase 2 days functional test flight	5 days from drop to flyable [200 man-hours]
CH-47D PHASE INSPECTION SCHEDULE: 1-shift operation 1 day wash 10 days phase 2 days functional test flight	13 days from drop to flyable [700 man-hours]
OH-58D PROGRESSIVE PHASE MAINTENANCE (PPM)	30 PPMs in 600-hour cycle [24 man-hours]

By anyone's standards, these two phase inspections were truly extraordinary achievements; however, they were not too different from the normal (5- to 8-day) AH-64 Apache phase effort at USAAVNC. Fort Rucker routinely takes from 5 to 14 days to do an AH-64 phase: about 5 days or 650 man-hours on phases 1 and 3 and about 800 man-hours or 8 days on phases 2 and 4.

The 5- to 8-day feat (figures 1 and 2) is even more remarkable because USAAVNC's aircraft are by far the oldest AH-64s in the fleet. (Most of them are 1983 and 1984 models; a few are 1985 models.)

Other U.S. Army organizations average—in peacetime—around 40 days to complete a phase 1. (Some units take from 12 to 100 days to complete an Apache phase.)

USAAVNC normally uses 16 people on a phase maintenance: one lead person, one records clerk, six mechanics, one sheet metal mechanic, one avionics technician, one armament mechanic, one industrial cleaner, one

technical inspector, two test pilots, and a flight mechanic on a phase team.

How Fort Rucker does it

How does Fort Rucker accomplish such a complex and challenging task as an Apache phase inspection (figure 3)? First, Fort Rucker uses a successful cost-plus multiple incentive fee contract to provide specialized and stable contract maintenance support to the USAAVNC. This contract maintenance has been in place for 37 years and provides maintenance employees who average 46 to 47 years of age with 16 to 25 years' experience.

Second, Fort Rucker has a relatively large fleet of 50 AH-64s, which provides many economy-of-scale advantages such as flexible scheduling, specialized phase crews, and an assembly line approach to scheduled maintenance.

Third, deferred maintenance is minimized through a contract that penalizes the contractor for deferring maintenance for more than 3 days. (This is true unless parts are not available or unless deferring makes economic sense to the government.)

The specific reasons why Fort Rucker is able to complete a phase in such a short time include the following:

☐ Full-time, specialized phase teams provide stability and high skill levels. (The average employee age is 47; average experience is 17 years; average AH-64 test pilot total pilot time is 8,500 hours; and average AH-64 test pilot time in Apache is more than 750 hours.)

☐ Phase teams and phase guides are divided into separate, specialized work areas.

☐ Maintenance officer selects tail numbers to be flown (not the operations officer); keeps the aircraft flow and bank time, number

FIGURE 3: Main steps in an AH-64 phase at USAAVNC

DAY	STEP	ACTIVITY	REMARKS
1	1	Top off fuel.	Parts needs are reconciled and ready for issue.
1	2	Wash.	
1	3	Take oil samples on wash rack.	
1	4	Hangar aircraft.	
1	5	Pull blades.	
1	6	Remove cowlings.	
2 & 3	7	Perform visual inspections.	We know trouble areas and all parts are ordered.
4 & 5	8	Remove, replace, repair, install, and lubricate.	
6	9	Install cowlings and reconcile books.	
6	10	Install blades.	
7 & 8	11	Move aircraft outside on ramp.	
7 & 8	12	Perform mechanic maintenance (auxiliary power unit (APU)) power-on checks.	
7 & 8	13	Perform electronics (APU) power-on checks.	
7 & 8	14	Spot paint.	
7 & 8	15	Move aircraft to boresight hangar.	Combined boresight harmonization kit.
7 & 8	16	Perform flight readiness technical inspection.	Involves aircraft and paper work.
7 & 8	17	Move aircraft to flight line.	
7 & 8	18	Perform test flight.	Perform unscheduled maintenance.
7 & 8	19	This phase ready for issue.	

of hours to the next major inspection, scheduled; and keeps aircraft down for any reason to a maximum of 60 days, even if it means changing aircraft down through controlled exchange.

☐ Controlled exchange, lateral exchange of parts from one aircraft to another, is closely monitored. The average is less than two controlled exchanges for every 750 aircraft launched or about 110 exchanges per month. (Controlled exchanges increased because of Desert Shield.)

☐ The USAAVNC AH-64 flying hour program of about 20,000 hours a year allows the maintenance contractor to employ three full-time AH-64 phase teams working 0600 to 1430 hours, 5 days a week in a production line.

☐ Instructor pilots and student pilots provide thorough quality assurance service through their careful preflight, inflight, and postflight inspections that are performed by the book.

☐ Phase inspections are completed and parts are on order no-later-than day three of the phase inspection. Finite life and time between overhaul parts, lubricants, and special materials are ordered well before the phase inspection so as to be onhand when the aircraft is brought into phase.

☐ Clear, efficient, and safe procedures are followed. (Tail number cowling and parts racks, specially designed work stands, and good marking procedures are used.)

☐ The AH-64 authorized stockage level is co-located with the well-lighted, temperature-controlled, well-ventilated, phase hangar. Supply is open 24 hours per day. One hangar is dedicated to scheduled work only.

☐ The Fort Rucker Program Realtime Information System for Management (PRISM) provides timely supply, accounting, personnel, and maintenance information service to the phase team. PRISM allows every requisition to be a quick 3- to 5-minute walk through action. Direct Exchange is used as much as possible.

☐ Phase team technical libraries are complete, up-to-date, and located at the work site.

☐ There are no work stoppages "awaiting Technical Inspector (TI)" because a full-time TI is assigned to each phase team and is pro-active.

Other Statistics on the AH-64

USAAVNC completed 76 Apache phases in fiscal year (FY) 1989 and 81 Apache phases in FY 1990. USAAVNC flew 20,469.9 Apache hours in FY 1989 and 19,321 hours in FY 1990. The direct, indirect, and management maintenance man-hours per flight hour rate at Fort Rucker for the AH-64 is about 20 to 27 maintenance man-hours; that is, for every hour Apache flies, maintenance works on the AH-64 20 to 27 man-hours. The Fort Rucker direct maintenance man-hours per flight hour rate for Apache runs around 12 to 14 (figure 4).

Suggestions

Other organizations may want to consider these suggestions to enhance their work in the AH-64 Apache phase maintenance programs.

☐ Low flying hour programs, like most Army units have, should employ the pre-phase test flight using their most experienced maintenance pilots.

☐ Between phases avoid deferred maintenance; fix problems as they develop.

☐ Manage your bank time by allowing maintenance officers to select tail numbers to be flown. Schedule aircraft into phase at a rate equal to or less than your available maintenance man-hours. (In other words, don't overfly your maintenance capability.)

☐ Write down a clear, simple, and thorough phase standard operating procedure and follow it.

☐ Order finite life items, filters, lubricants, adhesives, etc., so as to have them on-hand before the aircraft flies into the scheduled maintenance phase.

☐ Select a phase team with a full-time technical inspector and keep it together.

☐ Complete all phase inspections and get **all** parts on order in the first few days of the phase.

☐ Do a thorough **daily** reconciliation of parts needed.

☐ Consolidate the phase effort above company level (since there is insufficient logistical power at the company level).

☐ Use preprinted forms to streamline and standardize your effort.

☐ Consider reverse cycle work to get rid of distractors and eliminate congestion at the aircraft (armament work days and other maintenance work nights).

World Record Apache Phase Inspections

Summary

Thanks to the two AH-64 phases, and other maintenance assistance provided by the Fort Rucker aircraft maintenance government and contractor team, the 229th Aviation Regiment arrived in the Middle East on time. Aircraft were 100 percent fully mission capable. They had a robust prescribed load list (parts package) and lots of bank time; that is, flying hours to the next phase inspection. If you have any questions about AH-64 aircraft maintenance at Fort Rucker, call Mr. David Caddell at (205) 255-4240 or AUTOVON 558-4240. Readers may also contact LTC W. Larry Dandridge (Retired), Program Manager and Senior Research Scientist, Battelle Pacific Northwest Laboratory, Salt Lake City, UT, (801) 833-3142.

MILITARY OCCUPATIONAL SPECIALTIES (DIRECT LABOR)	MMH/FH	SCHEDULED	UN-SCHEDULED
68B Power Plant Repair	0.2	0.1	0.1
68D Power Train Repair	0.4	0.2	0.2
68F Aircraft Electrician	0.2	0.1	0.1
68G Structural Repair	0.4	0.0	0.4
68H Repair	0.2	0.0	0.2
68J Armament Missile System Repair	0.8	0.0	0.8
68L Avionics Equipment Repair	2.2	0.4	1.8
68M Avionics Mechanic	2.2	1.0	1.2
68Q Avionics Flight Systems Repair (EETF)	0.5	0.0	0.5
68R Avionics Radar Repair	N/A	N/A	N/A
TOTAL 68 SERIES HOURS	**7.1**	1.8	5.3
67R AH-64 Attack Helicopter Repair (mechanic)	2.6	2.6	0.0
TOTAL 68 AND 67 SERIES HOURS	**9.7**	4.4	5.3
66J Aircraft Armament/Missile System Inspector	1.1	1.0	0.1
66R AH-64 Technical Inspector	0.3	0.2	0.1
TOTAL HOURS	**11.1**	5.6	5.5

CATEGORIES (INDIRECT LABOR)	MMH/FH	SCHEDULED	UN-SCHEDULED
Launch and Recovery (3 launches per day)	3.7	0.0	3.7
Test Flight/Aircraft Recovery	0.9	0.4	0.5
Ammunition Loaders	0.7	0.0	0.7
Ground Handling/Industrial Cleaners	0.7	0.0	0.7
Training, Including Safety	0.6	0.0	0.6
Stage Field Support	0.3	0.0	0.3
Research (Aircraft Publications)	0.2	0.0	0.2
Other Indirect Labor	**2.5**	0.0	2.5
TOTAL HOURS	**9.6**	0.4	9.2

MANAGEMENT	MH/FH	SCHEDULED	UN-SCHEDULED
TOTAL MANAGEMENT HOURS	**1.5**	0.4	1.1

TOTAL MAN-HOURS PER FLIGHT HOUR	**22.2**	6.4	15.8

FIGURE 4: USAAVNC AH-64 Maintenance Man-Hours (MMH) per Flight Hour (FH)

These figures are estimates. Contract maintenance specialties do not exactly equate to U.S. Army MOSs. The current MMH rate is closer to 20, but the rate is unstable depending upon other factors such as parts availability.

COL Kerrick presents the Safety Award to Major Jeffery Long and members of the Aviation Detachment, 711th Military Intelligence Battalion.

20 Years of Accident-Free Flying

SPC Gretchen K. Hajek
Headquarters and Headquarters Company
701st Military Intelligence Brigade
APO NY

MR. ELMER B. GEIGES, U.S. Army, Europe's (USAEUR's) Chief of Aviation Safety, made a special visit to the aviation hangar on 1 July. His visit had two purposes. He conducted a class discussion on Aviation Safety, the Army Safety Program, and Safety during Operation Desert Shield/Storm, and he presented Colonel (COL) Kerrick with an Aviation Safety Award for 20 years of accident-free flying.

After COL Kerrick gave a few remarks, he presented the award to Major Jeffery Long, Commander, **Aviation Detachment, 711th Military Intelligence (MI) Battalion.** This is the third unit to receive such an award in USAEUR's history.

Army Aviation is a high-risk business, especially rotary-wing flying, and to be able to sustain such a long period of high-safety standards is unique in itself. The length of time that the accident-free period has been maintained reflects not only the dedication, professionalism, and technical excellence of the crewmembers, but also maintenance personnel. It also shows years of good judgment and decisionmaking as well as day-to-day skills and expertise.

Finally, the accomplishment of having 15,800+ hours (over a 20-year period) of accident-free flying sets the standard for safety, not only for the brigade, but for Army Aviation as a whole.

Captain Paul M. Steele
A Company, 1-5th Aviation Regiment
Fort Polk, LA

SOUND...

HE NEVER DREAMED that making so much money could be so easy. Although the plan to kill the American dignitaries was his idea, he didn't lift a finger in its execution. That was left to the paid soldiers having a party in the barracks next door. But the soldiers' share of the payoff was nothing compared to the stack of bills he was fondling. Not even the American military positioned just on the other side of the border concerned him now. His private army possessed the best weapons money could buy. Although the sentries manning the heavy machineguns tonight were not partaking in the celebration, he knew that the sentries' loyalty and dedication were bought and paid for.

Suddenly, an explosion erupts from the barracks. Saboteurs? Government agents? Then another explosion. He races to the door, throws it open, and hears that unmistakable sound. Helicopters! How did they get so close? Why hadn't the sentries fired on them? A swoosh and a whistle were the last sounds he heard....

Army helicopters are engineered and tactically employed in ways that reduce their visual, radar, and heat signatures. Although engineers continue to decrease noise levels of combat helicopters, little is said about tactical employment considerations that could help. This is probably due to environmental factors that alter acoustic properties and, thus, make it nearly impossible to predict accurately how, and to what degree, a helicopter's acoustical signature is affected.

However, a general understanding of how different environmental conditions alter sound waves can give commanders and aviators more to consider on the use of tactical helicopters to achieve surprise on the battlefield. Because the acoustic measurements of current Army helicopters are classified, it is not possible to present actual examples. However, when possible, general examples are given.

SOUND... Attenuation and Absorption

For all practical purposes, a helicopter is a point source of sound. That is to say, it produces a spherical sound field. As a spherical sound field (wave) travels farther from the helicopter, its acoustic energy spreads over a larger surface area (figure 1). Therefore, the sound level is reduced. This reduced sound level is called sound attenuation. Attenuation is the principal reason why a whisper cannot be heard as far away as an explosion.

Mathematically, attenuation is 6 decibels (dB) for each doubling of the distance from the source. Therefore, a sound wave, produced by a helicopter, that is 100 dB at 100 meters will be reduced

The Attack

to 70 dB at 3,200 meters. In the case of helicopter sound levels, however, this reduction is deceiving. Although the sound levels are reduced (attenuated), the frequency distribution pattern is not altered by attenuation. Helicopters have very unique sound patterns that are recognizable even when their sound level is greatly reduced. The sound of a helicopter either must be reduced to a greater extent than other sounds or masked by background noise not to be recognized.

Air is not a perfectly elastic sound medium. Air absorbs some of the acoustic energy generated by a source. Unlike the attenuation of sound over distance, the absorption of sound by air is frequency dependent. It also depends on the relative humidity and temperature of the air. Higher frequencies are absorbed at relative humidities between 20 to 60 percent more than lower frequencies. For example, a sound wave of 4,000 hertz at 40-percent relative humidity and a temperature of 70 degrees Fahrenheit will be absorbed at over 10 dB per 1,000 feet.

SOUND... and Wind

The difference between the wind velocity at the location of the sound receiver (targeted area) and the elevated source (helicopter) causes sound waves to bend toward or away from the ground. There does not have to be any significant altitude difference between the receiver and the source. Simple ground friction can cause a difference in wind velocities. A

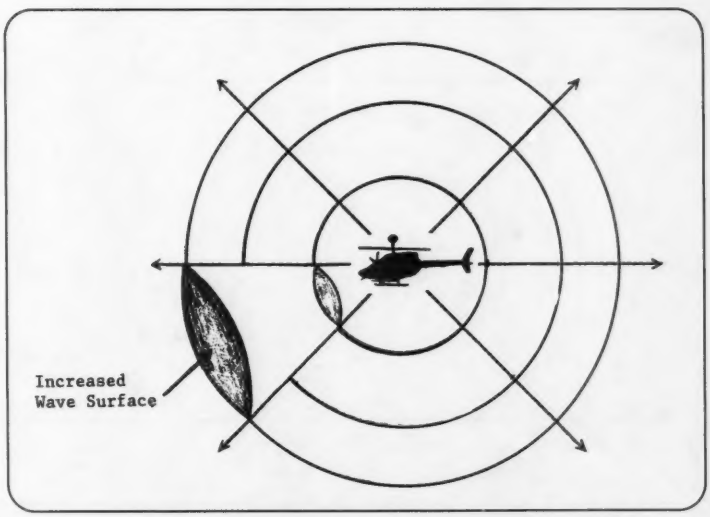


FIGURE 1: Spherical sound pattern and attenuation

pressure gradient is created and causes sound to be bent upward against the wind, and downward with the wind (figure 2). If the gradient is sufficient, a "shadow region" may be created where sound is not perceived. Therefore, it is preferable to approach an engagement area or landing zone into the wind for more than just aerodynamic reasons.

SOUND ... and Temperature

Temperature gradients also can bend sound. Under normal circumstances, the temperature of the air decreases with an increase in altitude. Because the speed of sound is slower in colder air, sound waves bend upward (figure 3). Like the wind gradient's bending of sound, a shadow region may be created. However, this shadow region exists at a distance

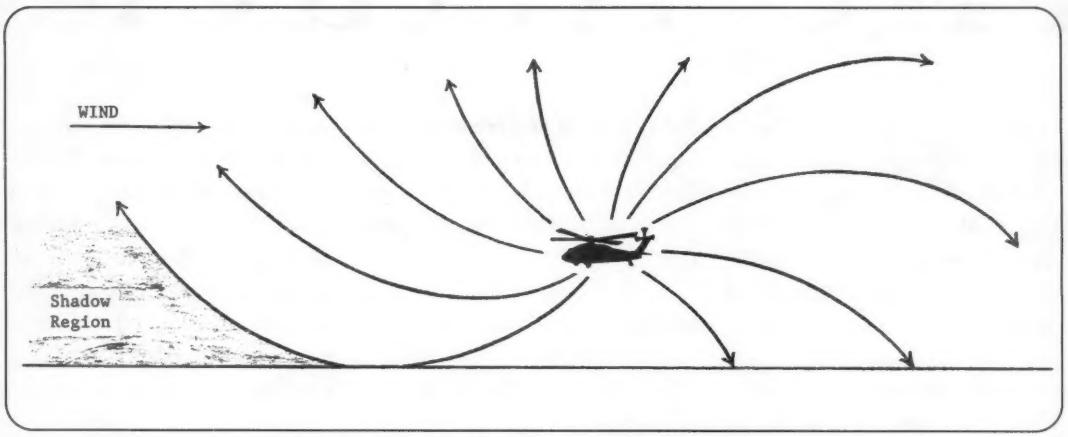


FIGURE 2: Bending of sound waves by wind gradient

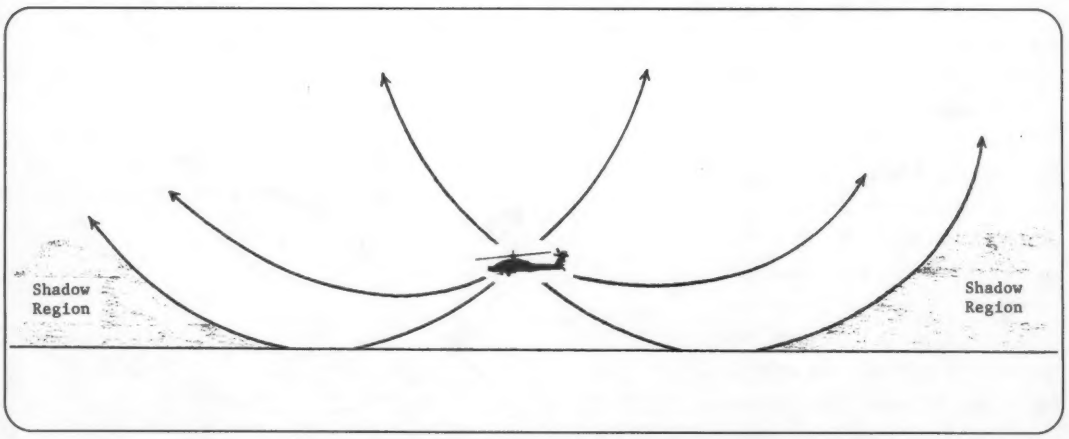


FIGURE 3: Bending of sound waves by normal temperature gradient

away from the source in all directions. But, just as with the wind-created shadow region, it is nearly impossible to predict whether, or where, it will occur.

In a temperature inversion, the temperature of the air is warmer above than below. Inversions often occur just after sundown and in winter. Reversing normal temperature gradient results in sound bending toward the ground (figure 4). This phenomenon (sound bending toward the ground) can be detrimental to any plans for stealth operations. Inversions can have an amazing effect on sound. On a quiet day, on a lake under an inversion, it is possible to understand normal speech over distances of up to 1/2 mile!

SOUND... and Echoes

A true echo occurs when a relatively short impulse sound is reflected and then heard at least 50 milliseconds after the same sound is heard from a more direct path. Because the sound of a helicopter is continuous, any reflected sound waves simply add to the sound waves heard before them. The ear interprets these sounds waves as an increase in loudness. Although this can be detrimental to stealth operations, it can be advantageous in other ways.

In very mountainous terrain, sound waves are reflected repeatedly before they are heard. Oftentimes it is impossible to discern where the source is actually located since sound is being heard from many directions. These sounds can rob an enemy of some precious target acquisition time. This is especially true if a helicopter remains masked behind a mountain or hill so that the enemy hears no direct sound waves.

SOUND...Conclusions

During low-intensity conflicts, the vast majority of enemy air defense systems depend on visual target acquisition. Often, a helicopter is heard before it is seen as the introductory scenario demonstrates. Commanders and aviators should be aware of the acoustical signature of their aircraft and how the environment affects it. An extra few hundred meters from the target can result in a substantial reduction in noise levels.

Commanders and aviators must also understand that directly flying into a steady wind, while approaching the enemy, greatly increases their probability of achieving surprise. And, finally, they must be aware that operating under a temperature inversion or within mountainous terrain illuminates their presence to the enemy.

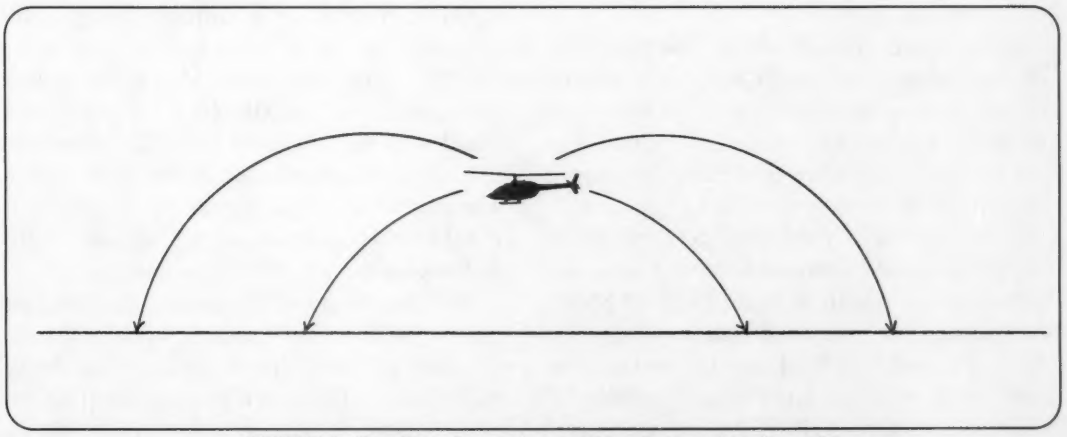
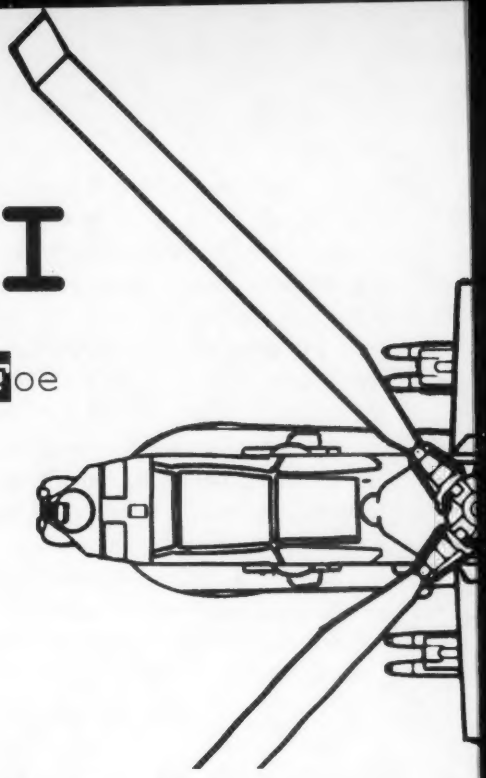


FIGURE 4: Bending of sound waves by a temperature inversion

MARK XII

Identification, Friend or Foe

Sergeant First Class Paul D. Jones
Training Development NCO
Directorate of Training and Doctrine
U.S. Army Aviation Center
Fort Rucker, AL



THE MARK (MK) XII Identification, Friend or Foe (IFF) system provides a quick means of identification of aircraft. When properly used, it will prevent the accidental loss of friendly aircraft (fratricide).

The MK XII IFF system has been in the field since the 1960's. Over the years, the system has had several operating misconceptions. This has resulted in a lack of standard training and knowledge about the system.

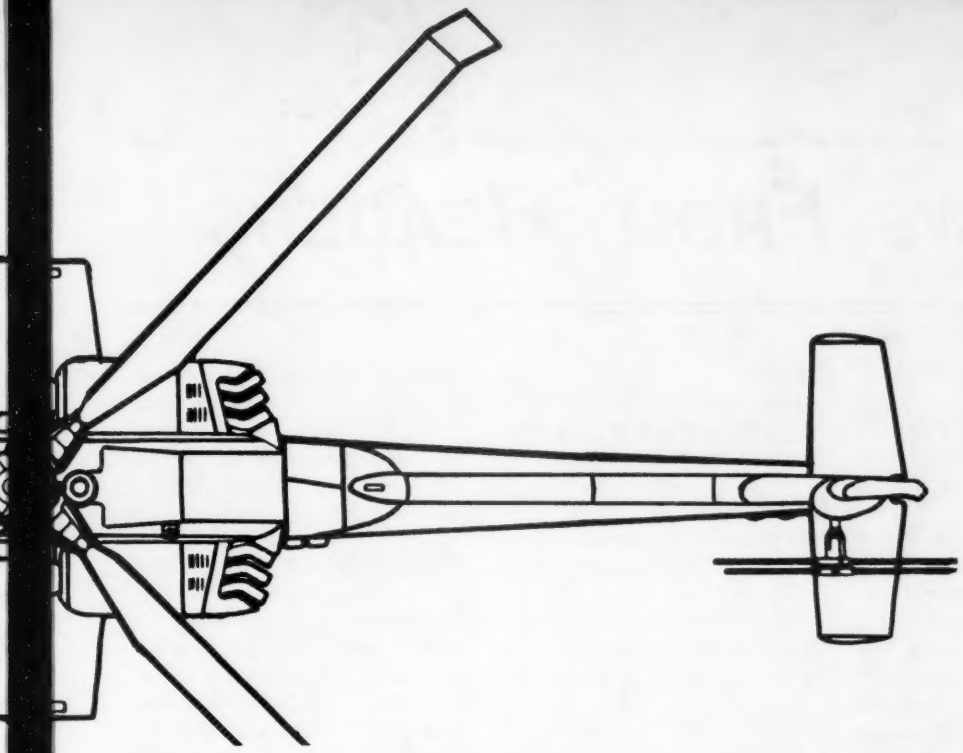
While the transponder self-test and test set operation tasks have been designated to an individual military occupational specialty (MOS), the programming and keying tasks have not. This has also resulted in a low proficiency rate for the individuals performing these tasks.

In the summer of 1989, the U.S. Army Training and Doctrine Command Analysis Command, White Sands Missile Range (TRAC-WSMR), NM, along with evaluation members from Fort Bliss, TX, and Fort Rucker, AL, conducted an analysis. This study, a Post Fielding Training Effectiveness Analysis (PFTEA), was conducted in U.S. Army, Europe (USAREUR) to ascertain an overall assessment of IFF training.

This study provided valuable information to USAREUR, air defense artillery, and Army Aviation on the effectiveness of training and use of the MK XII IFF system. The training base at Fort Rucker is currently trying to resolve these problems with the MK XII IFF system.

The Department of Tactics and Simulation (DOTS), Fort Rucker, is currently using six IFF trainers, three AN/APX-72s, and three AN/APX-100 systems, with MODE 4 capability, to train aviators. The MK XII IFF trainers, combined with the AN/APM-424(V)2 transponder test set, provide hands-on training to the aviator. The aviator learns programming, keying, self-test, Mode 4 code hold, and operational test procedures for the MK XII IFF system.

The Directorate of Evaluation and Standardization (DES) at Fort Rucker is working to make standard all the airframe operators' technical manuals (-10 TMs) on the operation of all avionics equipment. The operational procedures in



the operators' TMs for the MK XII system should be correct and standard when these changes are implemented.

The Directorate of Training and Doctrine (DOTD) at Fort Rucker is assisting both DES and DOTS. DOTD is also working other issues concerning the MK XII IFF system.

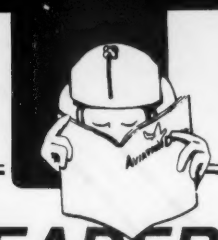
The PFTEA determined the 93P Flight Operations Specialist and 68N Avionics Mechanic MOSs would be best suited for the programming and keying tasks for the MK XII system. Based on their findings, DOTD is working to incorporate these tasks into the correct schools.

DOTD is assisting the Department of Defense (DOD) Air Traffic Control (ATC) MK XII IFF system (DOD AIMS). AIMS is the ATC Radar Beacon System, MK XII IFF system. This action intends to correct all TMs associated with the MK XII IFF system. The most misprinted procedure is the Mode 4 code hold procedure. DOTD, along with DES, DOD AIMS, and the National Security Agency (NSA), is attempting to correct all related TMs.

The MK XII IFF system uses the KIT-1 or KIR-1 cryptographic computers for its Mode 4 operation. The KIT/KIR-1A system has been in the field for years, but the KIT/KIR-1C system has just recently been fielded. This may cause some confusion in the field. The KIT/KIR-1C are both form fit and functionally compatible with the KIT/KIR-1A, but the programming and keying procedures are different.

To help resolve problems with the MK XII IFF system, the Aircraft Survivability Management Branch of DOTD, Fort Rucker, has developed a handbook intended to answer questions about the operation and programming procedures of the MK XII IFF system. The handbook has been staffed and approved by both NSA and DOD AIMS activities.

Users may request the handbook, titled "U.S. Army Aviation Operating and Programming Procedures for the MK XII IFF Systems," from Commander, U.S. Army Aviation Center, ATTN: ATZQ-TDS-AS, Fort Rucker, AL 36362-5163.



VIEWS FROM READERS

Editor:

I would like to correct and clarify a few points made in the PEARL'S article on "Survival Knives," in the July/August 1991 issue of the ***U.S. Army Aviation Digest***.

Without going into depth on cutlery steels and metallurgy, let me say that properly heat treated and forged steels will not break under side loads. Custom made knives, as well as some factory blades, often are differentially heat treated to retain a hard, sharp edge and at the same time have a relatively soft spine to allow flexing (often to 90 degrees).

A knife is first and foremost a cutting tool. To say we can sacrifice cutting ability for other attributes is to ignore the current state-of-the-art knives available on the market. The hunting knife as issued is a poor design. I have seen dozens of these knives break, often at the hilt. Its balance, blade design, edge geometry, and construction are all substandard for a tool you may stake your life on. The fact is, this knife is cheap to make, and that makes it disposable or expendable. About all you can say in its favor is that it is better than nothing. Yes, the custom and better factory knives cost more, but let's not use that as an excuse for equipping our troops with an inferior product.

Last, the MC-1 springblade knife can be ordered separately.

CPT G. E. Kocher
543d Ordnance Detachment
(Explosive Ordnance Disposal Center Training)
Fort Leonard Wood, MO

Editor:

I would like to draw your attention to the forthcoming 32d Israel Annual Conference on Aviation and Astronautics that will be held 18 through 20 February 1992 at the Tel Aviv Hilton Hotel (Technion - Israel Institute of Technology, Haifa) in Israel.

The 32d Israel Annual Conference will have a special focus on the subject of Civilian Space Applications. Conference languages are English and Hebrew.

For more information contact Dr. Alon Dumanis, Chairman, Program Committee, 32d Israel Annual Conference on Aviation and Astronautics, Faculty of Engineering, Tel Aviv University, Ramat Aviv 69978, Israel. Telefax 00972-3-6429540 or phone 00972-3-6429541.

Editor:

The Senior Officer Logistics Management Course (SOLMC) is specifically designed to update commanders and their primary staff at the battalion and brigade level in the logistics arena. The curriculum includes maintenance, supply, and transportation procedures. The curriculum also includes hands-on experience with vehicles; weapons; ammunition; medical; communications; nuclear, biological, and chemical; and quartermaster equipment.

The course is open to officers in the grade of major or above in the Active and Reserve Army, U.S. Marine Corps, allied nations, and Department of Defense civilians in the grade of General Schedule-11 or above. The 1-week course is conducted 10 times each fiscal year (FY) at Fort Knox, KY. Class quotas may be obtained through normal U.S. Army Training and Doctrine Command channels.

For more information phone the SOLMC staff, DSN 464-7133/3411 or commercial 502-624-7133/3411. The principal point of contact for administrative information and enrollment procedures (course schedule below) is the Maintenance Department Support Section, DSN 464-1755 or commercial 502-624-1755.

SENIOR OFFICER LOGISTICS MANAGEMENT COURSE schedule
Course Number 8A-F23

class	FY 1992	FY 1993
1	(completed)	4—9 Oct 92
2	5—10 Jan 92	3—8 Jan 93
3	26—31 Jan 92	7—12 Feb 93
4	1—6 Mar 92	21—26 Mar 93
5	29Mar–3Apr 92	11—16 Apr 93
6	5—10 Apr 92	25—30 Apr 93
7	26Apr–1May92	9—14 May 93
8	10—15 May 92	23—28 May 93
9	14—19 Jun 92	27Jun–2Jul 93
10	20—25 Sep 92	12—17 Sep 93

Editor:

The Battalion Motor Officer Course (BMOC) is designed to prepare officers for assignment to positions that have direct related mainte-

nance responsibilities at the unit level (battalion/squadron and below) with emphasis on management and supervisory operations.

The course consists of classes in maintenance management, repair parts supply, troubleshooting, recovery operations, and scheduled maintenance services. The BMOC is open to Active Army and Reserve Component captains, first and second lieutenants, warrant officers, and allied nations officers who have completed the basic course and have been in the field for more than 6 months.

The 4-week course is conducted 19 times each fiscal year (FY) at Fort Knox, KY. Class quotas may be obtained through normal U.S. Army Training and Doctrine Command channels. For more information contact Chief Warrant Officer (CW3) Gerry R.L. Delaquis, DSN 464-8119/8510 or commercial 502-624-8119/8510. Classes scheduled for the remainder of FY 1992 are shown in the table at right.

Battalion Motor Officer Course schedule
Course Number 8C-F21

class number	reporting date	starting date	ending date
004	30 Jan 92	3 Feb 92	3 Mar 92
005	13 Feb 92	18 Feb 92	17 Mar 92
006	28 Feb 92	3 Mar 92	31 Mar 92
007	13 Mar 92	17 Mar 92	14 Apr 92
008	27 Mar 92	31 Mar 92	28 Apr 92
009	10 Apr 92	14 Apr 92	12 May 92
010	23 Apr 92	27 Apr 92	22 May 92
011	7 May 92	11 May 92	9 Jun 92
012	20 May 92	22 May 92	19 Jun 92
013	4 Jun 92	8 Jun 92	7 Jul 92
014	18 Jun 92	22 Jun 92	21 Jul 92
015	17 Jul 92	21 Jul 92	18 Aug 92
016	6 Aug 92	10 Aug 92	4 Sep 92
502	20 Aug 92	24 Aug 92	22 Sep 92
503	10 Sep 92	14 Sep 92	9 Oct 92

Editor:

The 7th Squadron, 6th Cavalry Regiment Attack Helicopter Battalion (ATKHB), Conroe, TX, is currently scheduled to become the first U.S. Army Reserve unit to field the Apache. This expansion of advanced attack helicopters to the Army Reserve is opening a new era of Army Aviation as well as creating new opportunities for soldiers with Apache-peculiar skills who are considering leaving an Active Component and becoming citizen-soldiers.

Located just north of Houston in Conroe, TX, this unit is actively preparing for entry into the Apache Training Brigade Unit Training Program. Preparation includes recruiting personnel with Apache military occupational specialty (MOS) and

new equipment training, requisitioning equipment, and training cadre at Fort Hood, TX.

Any individual with an Apache MOS and an estimated time of separation from the Active Army during fiscal year 1992 who is interested in joining this first-of-a-kind unit should call commercial 409-539-4311 or write to Commander, 7th Squadron, 6th Cavalry Regiment (ATKHB), Route 22, Box 960, Conroe, TX 77303-2298.

MAJ Jimmy D. Minchew
Executive Officer
7-6th Cavalry Regiment
(ATKHB)

Editor:

The cover of the March/April 1991 issue of the ***U.S. Army Aviation Digest*** displays a man wearing an integrated helmet and display sight subsystem (IHADSS) helmet from an AH-64 Apache. It does not, however, identify him.

The California Army National Guard is proud to inform you that he is Lieutenant Colonel (LTC) Steven C. Lund, a California guardsman and member of the 40th Infantry Division (Mechanized (M)), Los Alamitos, CA.

The photograph was taken of LTC Lund while he was employed as the Chief of Human Factors Engineering at McDonnell-Douglas Helicopters in 1985 and has appeared in numerous professional journals.

LTC Lund has served the Army in many capacities, both Active and Reserve status. Previous assignments include a tour as the Battalion (Bn) Commander, 1/140th Aviation Bn (Attack), and as the Assistant Chief of Staff, G-2, 40th Infantry Division (M). Now he is the Executive Officer, 40th Aviation Brigade.

CPT Lisa E. Brenner, Signal Corps
Task Force Group Signal Officer
California Army National Guard

Editor:

From 24 through 27 February 1992, the U.S. Army Aviation Logistics School, Fort Eustis, VA, is hosting the 1992 Aviation Logistics Commanders' Conference and the Maintenance Test Pilot Training Update in Williamsburg, VA.

For more information about either conference phone CW4 Hrichak or Mrs. Alvord at DSN 927-6166 or commercial 804-878-6166.

COL William J. Blair
Assistant Commandant
U.S. Army Aviation Logistics School
Fort Eustis, VA

Editor:

The Smoke/Obscurants Symposium XVI will be held 14 to 16 April 1992 at the Kossiakoff Conference and Education Center, Johns Hopkins University, Laurel, MD.

The theme of this year's Symposium is "Smoke, the Margin of Victory."

Some of the topics to be presented are as follows: Smoke Systems and Materiels, Modelling, Operational Uses, Health or Environmental Effects, Desert Storm Lessons, Countermeasures, Nonmilitary Applications, Data Analysis, Data Assessment and Evaluation, Camouflage, Concealment, Deception, Natural Obscurants, and Electromagnetic Systems Performance.

The U.S. Army Chemical Research, Development, and Engineering Center, Aberdeen Proving Ground, MD, is sponsoring the Symposium this year.

Members of the Department of Defense, industry, academia, and allied nations are invited to submit papers up to and including the SECRET level on the aforementioned topics.

Abstract paper submission deadline is 15 January 1992.

For further information contact Judy Cole, Symposium Coordinator, commercial 804-865-7604, telefax 804-865-8721; or Walter Klimek, Symposium Chairman, commercial 301-671-2494, DSN 584-2494, or telefax 301-671-3471.

Readers can obtain copies of the material that is printed in any issue by writing to:
Editor, U.S. Army Aviation Digest, ATZQ-APD, Fort Rucker, AL 36362-5042.

Don't Be Afraid To Say No

Warrant Officer Debora R. Barr
G Company, 227th Aviation Regiment
APO New York

SAFETY HAS always been a key issue in aviation. With this in mind, why do we hear so many "There I Was" stories from pilots who pushed it just a little too far? What about those pilots who aren't alive today to talk about their hair-raising experiences? Worse yet, what about the stories that innocent passengers might have told had they survived?

Have you ever flown into weather that really made you uncomfortable? Yet, you continued to press on, despite your better judgement. When you arrived at your destination, you may have thought to yourself, "that was really stupid, but we made it." Then you ask,"Was it really worth the risk?"

If you are flying a helicopter, there is no excuse for continuing flight into weather that is below minimums. A helicopter can be landed practically anywhere. The longer you continue flying in bad weather, the greater your chances of flying into unmarked wires, or the new tower that isn't marked on the map.

Crew coordination is very important when flying in marginal weather. If you don't have honest open communication between crewmembers, you may be setting yourself up for disaster. If the person navigating doesn't admit to being lost when hovering along at treetop level, you won't know when to expect that next set of wires.

Another crew coordination problem arises when the less experienced aviator is afraid to question the actions of the more experienced aviator for fear of reprimand. Whenever you are in the cockpit, the entire crew must pull together as one unit. Do not exceed the abilities of the least experienced member, especially in bad weather.

When referring to crew experience for flying in marginal weather, a crewmember with 3,000 hours of "clear blue and 22" is no more ready to tackle that scud-running flight than the 300-hour pilot. This is especially true when flying in an unfamiliar area. Even the most familiar route looks entirely different when flying at reduced airspeed and altitude. It is easy to become disoriented in the most familiar place when the we ather bottoms out.

Everyone must set limits for themselves before getting into that highly stressful situation. If you don't feel that 800 meters or 1/2-mile visibility is enough for you to avoid an obstacle, don't let yourself get into a situation where the weather is below your limit before landing. The aircraft does what you tell it to. It doesn't have feelings or experience fear. It can easily exceed your abilities when the stress level is high.

Don't push yourself beyond your abilities or the abilities of the other crewmembers. No law stating that you have to fly when the weather reaches those magic numbers the Army allows for legal weather minimums. You must take into account your personal experience flying in marginal weather. You must also consider other crewmembers' experience before you decide to take off or press on when the weather drops.

Don't overlook the aircraft in your decision. Does it have a history of radio problems? Are the navigation instruments reliable? Use common sense when flying in marginal weather.

Don't let peer pressure, get-home-itis, or pressure from passengers push you beyond your safe operating limits. As pilot in command, you are responsible for the aircraft and the safety of its occupants. Your life and the lives of your passengers are at stake. Don't be afraid to delay the mission until the weather improves. Don't be afraid to say NO!

M-130 Flare/Chaff Dispenser, Second Notice

Sergeant First Class Paul D. Jones
Training Development NCO
Directorate of Training and Doctrine
U.S. Army Aviation Center
Fort Rucker, AL

A field exercise in 1990 disclosed that soldiers did not know exactly how to properly test, load, arm, and program the M-130 Chaff/Flare Dispenser.

The Directorate of Training and Doctrine (DOTD), Fort Rucker, AL, wrote an article that was published in the January-February 1991 issue of ***Aviation Digest*** addressing this problem. The article dealt with the technical manual and training devices for the M-130 Dispenser.

To restate the earlier article, the M-130 Technical Manual (TM) 9-1095-206-13&P designated the operator and crew the responsibility for performing the preflight-rearm test and loading the system. The TM did not specify a maintainer for Aviation Unit Maintenance (AVUM) or Aviation Intermediate Maintenance (AVIM).

In November 1988, a new TM 9-1095-206-23&P was published designating the military occupational specialty (MOS) 68J Aircraft Armament/Missile Repairer as the AVUM-AVIM maintainer; MOS 68N (35K) Avionics Mechanic as the AVUM maintainer in units not authorized 68J; and MOS 68R (35R) Avionics Radar Repairer for AVIM maintenance.

This new TM incorporated the preflight-rearm test and loading procedures into the AVUM responsibilities. The operator tasks are outlined in the proper airframe -10 TMs.

This November 1988 manual was not sent out immediately. However, this manual is currently being fielded on automatic distribution or may be ordered through normal publication channels. All units equipped with the M-130 should ensure they have this new manual.

The DOTD, Fort Rucker, fielded a handbook on how to test, load, arm, and program the M-130 Dispenser System. This M-130 handbook was distributed to all Apache units equipped with the M-130 System in September 1990. The M-130 handbook was then sent to all units requesting one.

However, the recent conflict in the Middle East revealed again that many soldiers did not know exactly how to properly test, load, arm, and program the M-130 Chaff/Flare Dispenser. In addition to this, the M-130 Technical Manual, TM 9-1095-206-23&P, had not been received by all units equipped with the dispenser. And the new TM did not address how to load a dual-mounted flare and chaff system.

Therefore, the Aircraft Survivability Training Management Branch, DOTD, U.S. Army Aviation Center, Fort Rucker, revised the M-130 handbook. The revision included procedures for loading aircraft equipped with dual-mounted dispenser assemblies. The aircraft includes the AN/ALQ-156 Countermeasures Set and added safety precautions.

To ensure units have the available information on the M-130 Dispenser System, they should keep both TM 9-1095-206-13&P and TM 9-1095-206-23&P. TM 9-1095-206-13&P cannot be reordered. Users may request a copy of the revised handbook from Commander, U.S. Army Aviation Center, ATTN: ATZQ-TDS-AS, Fort Rucker, AL 36362-5163.

PEARL'S

Walking Back or Self-Initiated Recovery

Throughout history, military people cut off from their main force were on "their own." They were expected to evade through enemy-held territory as best they could to rejoin their forces. With the invention of aircraft and the application of unconventional warfare, more people operated deep in enemy territory. Yet, their return to friendly forces was still often a "personal problem."

During World War II, in North Africa, aircrew members of 382 downed aircraft walked back to friendly lines. The longest episode lasted 29 days with the evaders traveling 350 miles. Other extraordinary examples include an individual who walked 50 miles in 24 hours. One man, wounded in both legs, crawled toward allied lines for 5 days, with no water, before a friendly patrol spotted him. On the European continent in the 5 months following "D-Day," 1,393 downed flyers walked across friendly lines in France. Of these 1,393 downed flyers, 527 had been shot down before "D-Day." These numbers do not include the ground forces who were frequently cut off during the rapid movement and confusion of battle.

Returning to friendly forces took on new meaning during the Korean War, when helicopters and amphibious planes were used to recover 261 flyers from enemy territory. Though many were recovered by aircraft, 95 flyers returned by their foot power. Almost 700 ground troops escaped early in captivity and walked back to our lines. The number of ground troops "cut off" from their unit who returned on foot is unknown.

Southeast Asia saw expanded use of helicopters for recovery by all services. Several thousand soldiers were recovered from enemy-held territory. Yet, it was a costly effort.

The following statistics pertain to the United States (U.S.) Navy Search and Rescue (SAR) in North Vietnam:

- For every 1.8 recoveries, one SAR crewman was killed.
- For every 1.4 recoveries, one SAR aircraft was lost.

The following statistics pertain to the U.S. Air Force SAR in North Vietnam:

- For every 8.9 recoveries, one SAR crewman was killed.
- For every 4.6 recoveries, one SAR aircraft was lost.

During the 1980s, there has been a wide distribution of highly mobile antiaircraft weapons such as the SA-8, SA-9, SA-13, Stinger, Blowpipe, and ZSU-23-4. The deployment of these systems may again make the phrase "return to friendly forces" synonymous with "walking back." Given the accuracy and altitude coverage of these weapons, it is questionable whether aircraft and helicopters will be placed at risk to recover evaders in high threat areas. It is unpleasant to think about this harsh reality and of traveling great distances on

foot through hostile territory. Yet, weeks or months as an evader is far better than being a prisoner of war for years. Potential evaders need to face the possibility that this could happen to them, so they will be mentally or physically prepared to deal with this problem.

Potential evaders need to be aware of possible methods of self-initiated return.

A walking back, self-initiated recovery requires the evader to be intensely self-motivated. He must be prepared to endure many discomforts, show patience and perseverance, and have a strong positive mental attitude to return. While the evader is traveling he, at some point, must:

- care for injuries and illness,
- obtain sufficient water,
- obtain sufficient food to maintain energy and body temperature, and
- maintain normal body temperatures in hot or cold climates by proper use of clothing, shelter (natural or manmade), and fire, only if absolutely necessary.

These activities must be conducted without detection by the enemy.

Potential evaders need to be aware of possible methods of self-initiated return. Evaders also need to be aware of the drawbacks or hazards that may be encountered when using these methods.

Deep in enemy territory, away from the battle area, security is likely to be less than in a combat zone or border area. If the evader stays out of sight and leaves no evidence of his presence, the probability for successful movement is high. As the battle area is neared, security is greatly increased. An evader attempting to cross a battle area alone should realize that this is a very dangerous act. The evader is an anomaly to both sides. In attempting to contact friendly troops, the evader is coming from the wrong direction without pre-coordination or a current password. The same would hold true penetrating enemy lines. Therefore, the evader must avoid being spotted by either side. If movement is spotted at long range, the evader may draw tank, artillery, or mortar fire. Minefields or snipers could be another problem.

The only techniques suggested for contacting a frightened infantryman with an automatic weapon are do not do it at night and be very careful! Potential evaders may be provided theater specific guidance for crossing battle lines.

Ground unit contact is more likely near the forward line of own troops. If the front is fluctuating regularly or if evaders know of a planned friendly advance, they may choose to hide where the flow of battle overruns their hiding place. Evaders should be very careful if they see a friendly patrol and avoid surprising them. Evaders should get their attention from behind something bulletproof, such as a rock, etc. Evaders should make a noise; i.e., clear throat, cough, snap a stick, etc., before the patrol gets too close.

An additional recognition signal could be the American flag found on the Department of Defense evasion chart. Evaders should tuck the folded map into the neck of clothing leaving the flag exposed over the midbody/primary target zone. This action may help reduce the tension of the situation.

The evader should let a friendly patrol capture him. Do not make fast or threatening moves. Depending on the theater of operations, the evader may be required to authenticate using existing procedures. Contacting a friendly patrol may be the safest procedure for an evader in the front line area. The patrol knows the safe passage procedures for friendly forces.

A plan to go completely around a battle area might be the safest choice. By flanking the whole battle area, the evader may very carefully surrender to a friendly rear area sentry who is less likely to shoot first. The drawback to this strategy is the greater distances that must be traveled, particularly

with constantly changing battle lines. Today's warfare may be mechanized and fast moving. The battlefield may move, in any direction, 50 or more miles overnight.

Mines, patrols, and concealed observation posts might be used to guard the flanks of the main body of troops of both sides. Mines or booby traps are likely to be used in places that cannot be covered by a good field of fire, i.e., thick brush or forest, gullies, or rocky areas.

The evader must learn the basic combat survival skills of finding water, food, concealed shelter, and an accurate route of travel.

In a combat area, what looks like a good concealed route of travel could be a lethal trap. If possible, observe other activity in the area before selecting a route.

Evading to the coast may be another good option, particularly if the United States has naval superiority in the area. Evaders could remain concealed on shore, while signaling naval aircraft or ships. A major problem with this option is that most coastal areas are populated. Remember, people catch people!

Another choice is walking to a neutral border. There could be several problems with this option. Borders may be heavily defended with sophisticated barriers and antipersonnel devices.

Additionally, false borders may be set up by the enemy several miles from the actual border. The enemy does this to trick evaders into believing they have reached neutral territory and freedom. Evaders should move deep into a neutral country to avoid this trick.

Potential evaders should be aware of the requirements of the Geneva Conventions when approaching authorities of a neutral country. An evader is a combatant and must be interned until the end of hostilities. An escapee is not a combatant and may be returned to his country.

Finally, unprotected borders might be bounded by vast distances of barren land or difficult terrain. Both situations could make unassisted evasion very difficult because of harsh conditions and a requirement for great stamina. The evader's success may depend on his/her skill at finding sufficient water, food, and shelter.

The next time you or members of your unit attend a survival, evasion, resistance, and escape school or participate in an evasion/recovery exercise, you must realize the helicopter or assisted evasion practiced there may be the best case an evader can expect.

The evader must learn the basic combat survival skills of finding water, food, concealed shelter, and an accurate route of travel. These skills are essential, if the evader is forced to resort to the oldest recovery method—walking back.

Personal Equipment and Rescue/survival Lowdown

If you have questions about ALSE or rescue/survival gear, write to AMC Product Management Office, ATTN: AMCPM-ALSE, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798; or call DSN 693-3573 or commercial 314-263-3573

It's The Little Things

by CW4 Terrence L. Borzewski

It began as a routine flight physical, the 24th of my career. The routine was the same as always. I went down the checklist, station to station, until all the blocks were full. I had my interim up slip in my hand. My blood pressure was good, my cholesterol was good, and my weight was well within limits. I needed a new prescription for glasses, but nothing was obviously wrong. As I left the hospital, I was a happy camper. I was good for another year, or so I thought.

I guess you might say I represent many aviators. I am 43 years old, of average height and weight. I am an aviator who thought he was in good physical condition.

Yeah, I hate going to the flight surgeon just like most of you. I have suffered through the usual aches and pains associated with growing old. Of course, we all talk about how it is "hell" to get old.

If I had not been so ready to accept everything that happened to me as just "growing old," I might still be flying today.

We attribute many of the aches, pains, and body changes to the aging process. After all, we have never grown old before. We assume that whatever happens is due to our growing older. Sometimes this is a correct assumption. Yet, that assumption can be wrong, and if so, it can be hazardous or even deadly to our health.

As I look back over the past few years, I can see a pattern developing that ultimately left me grounded, my flying days ended. If I had not been so ready to accept everything that happened to me as just "growing old," I might still be flying today. Yeah, that is only speculation, but the chances for my continuing to fly would have been much better than they are today. Here is my story. Take a good look at it, and see if what happened to me is happening to you.

About 5 years ago, I began to put on weight. The weight gain was nothing spectacular or unusual. All of us gain a few pounds as we grow older. It became a constant battle for me to stay within standards. Since I was not alone, I never really gave it much thought.

I noticed, however, that I did not have much energy. Then again, having gained weight, I found it harder to move the "old body." That is normal, isn't it?

I would eat a meal and get tired. Many people get tired after eating. That is normal, isn't it? I used to enjoy hunting, but it seems that I do not have the energy to go tromping through the woods anymore. That is part of getting older, isn't it?

When I hit the big four zero, my 10/15 vision was suddenly 20/40, and glasses were in order. The

change in my vision was not unusual. As you get older, your vision is one of the first things to change. That is normal, isn't it?

I use to take part in high-powered rifle competition, but the long-range targets became harder to see clearly. No big deal; instead of using a 6 o'clock hold or center hold, I switched to a frame hold at long range. Even the frame at 600 yards was hard to see clearly. So, I switched from the M-14 rifle to the M-16 rifle. After all, you have to fire the M-16 rifle only 400 yards. That solution worked for a few years. Then, suddenly, even the frame at 400 yards was getting fuzzy. Yes, indeed, the old vision is getting worse. Yet, I am getting older, so that is normal, isn't it?

Exercise is becoming more difficult. I tire faster and have some shortness of breath. Then again, I am a bit overweight and getting older, so these symptoms are to be expected, right?

I often wake up in the middle of the night with a leg or arm cramp. Sometimes I wake up with a leg or arm tingling when this happens. I think I must have slept wrong and cut off my circulation. Everyone gets cramps from time to time, don't they?

Hey fellas! I am not on the weekend flying schedule, so it is time to go to the club and have a few brews. Boy, it is "hell" to get old. At one time, I could drink with the best of you, but these hangovers are hanging on longer and longer. The old eyeballs stay blurry until Sunday. To get out of bed or do anything is an effort. It is couch potato time, but that is normal, isn't it?

I have always been a big coffee drinker. Since my job as maintenance officer often kept me in the office, it was not unusual for me always to have a coffee cup or a pop can in my hand. Drinking a lot of coffee and diet pop caused me to go to the bathroom often. That is normal, isn't it?

Since I worked in maintenance, it was not unusual for me to cut myself on cotter pins and safety wire. Yet, it sure did take a long time for my injuries to heal. Then again, I am getting older, so that is normal, isn't it?

One day I stepped on the scale. As I looked at the weight, it shocked even me. Hey! I have a flight physical coming up in a few months, I better do something about this. So, I went on a self-imposed diet, and slowly shed over 25 pounds. I was well within weight standards. I was happy, my wife was happy, and the flight surgeon will be happy.

The big day came. As I stepped on the scale, I was 12 pounds under the maximum weight for my height. The rest of the physical should have been a snap. Since I was over the magic 40 number, I had to fast 12 hours before the physical, so the laboratory could do a cholesterol workup. I later found out the technicians also checked my blood sugar level. I breezed through the physical. The only thing they noted was my eyes had gone from 20/40 to 20/70. It was time for a new prescription. I left the hospital with the interim up slip and was relieved my physical was over for another year.

Tuesday of the following week I received a call from our personnel clerk, who told me there was a problem with my physical. I would have to take another test. The call caught me by surprise. I immediately called the flight surgeon, who told me that my blood sugar level was abnormal, and I would have to take a glucose tolerance test. He assured me that, most likely, I had nothing to worry about. Many other pilots had to take the same test.

I scheduled the test, and again I had to fast for 12 hours before the test. I went into the laboratory at the clinic. The technicians took a urine sample and blood sample, and they administered a dose of glucose. They took samples at 1- and 2-hour intervals, and the test was over.

I knew something was wrong immediately. After I took the glucose, I began to feel weak and tired. I could feel my legs beginning to cramp, and my vision becoming blurred.

I drove home. About halfway there, I realized I probably should not be driving. Yet, I was almost there, so I continued to drive. When I got home, I lay down and slept for several hours. Waking up, I still felt pretty bad. Those feelings persisted for

It's the little things that we need to be concerned about.

almost 2 days. I had taken the test on Friday, and on Monday afternoon I received a call from a doctor at the clinic. He told me the test results were abnormal, and I should contact the flight surgeon immediately.

I called the flight surgeon, who told me to go to the laboratory, get the test results, and bring them to him. When the doctor looked at the results, he told me he had to ground me. He wanted me to go on a diet for a couple of weeks and then retest. He gave me a 1,800-calorie-per-day diet. I looked at it and told him I had been eating nowhere near the calories on the diet. He showed me a 1,200-calorie diet that was close to what I had been eating while on my previous diet.

I stuck to the diet for the 2 weeks and went back to retest. The test was a 5-hour test instead of the previous 3-hour. The results of the 5-hour test were basically the same. The technicians gave me glucose, and I became weak. I had cramps in my legs, and my vision became blurred. I went home, and again I fell asleep.

For the next few days, I had the same symptoms as before. This time when the results came back, the diagnosis was confirmed. I was a diabetic, and my flying days were ended.

Late onset diabetes is not unusual, especially if you have a history of the disease in your immediate family. Neither my mother or father had diabetes, but my grandmother and aunt did. Since diabetes had not shown up in the immediate family, I was not concerned about it. As it turns out, I should have been concerned.

In late onset diabetes, the disease usually can be controlled by diet, if caught early. In my case, all of the classic symptoms were there and had been there for several years. I had ignored the symptoms, attributing them to old age.

If I had gone to see the flight surgeon earlier, he could have put me on a diet. I might have been able to control the disease, so I could have continued to fly. My diabetes is now beyond control by diet; therefore, I am desk bound for the rest of my career, however long that may be.

The point of this article is what you feel may not be just old age. In fact, it may be a serious medical problem. Do not try to be a doctor, and decide what is normal for you. We may know what makes our aircraft tick; however, we know nothing about what makes our body tick.

Ignoring seemingly minor medical problems or attributing them to "old age" can be hazardous to your health. In some cases, these problems can be hazardous to our crew and passengers. The flight surgeon's job is to keep us healthy and keep us flying. Unless you let him do his job, you may end like me, flying a desk.

I will never forget my last flight. It was a hop around the traffic pattern, tracking the rotor system on an old Huey Bird. I experienced a great deal of satisfaction in making that old girl fly as smooth as glass. Now, that is something I never will do again, simply because I ignored the symptoms of diabetes and did not see the flight surgeon earlier. Do not get caught in the same trap. It's the little things that we need to be concerned about.

CW4 Borzewski is a member of the Wisconsin Army National Guard. He is an aircraft maintenance officer assigned to 1st Battalion, 147th Aviation, 1952 Pearson Street, Madison, WI.

Commentary

by Lieutenant Colonel Kevin T. Mason
Medical Corp, Senior Flight Surgeon

Many diseases that accompany aging develop silently and insidiously. These diseases go unrecognized until the they are well developed. Examples of these diseases include diabetes, hypertension, glaucoma, cancer, and coronary artery disease. Much of the flying duty medical examination is directed toward the detection of silent diseases or discovery of modifiable risk factors so that preventive measures can be recommended. Even if present, signs and symptoms may not be readily recognized by the patient as being related to disease. The story line of "I thought it was just old age," is a common one heard by doctors. The author's advice to have your flight surgeon check you out is sound. After all, you would call maintenance if "the rotor bearings just did not feel right."

The chance for developing diabetes rises steadily after age 35. Since 50 percent of Army aviators now exceed the age of 38, the number of aviators with diabetes has been rising. Fortunately, the Army aviator has less risk for developing diabetes than the general population. The number of afflicted Army aviators remains small. The rate is about one new case per 6,000 aviators, per year.

At middle age, individuals with diabetes often have no complaints. The signs and symptoms of diabetes tend to be nonspecific. Common complaints of individuals with diabetes are gradually feeling tired, hungry, and thirsty, with excessive urination and weight changes. Visual acuity may fluctuate. Sometimes the onset of diabetes is dramatic and results in an emergency room visit. The diagnosis of the disease can be confirmed by blood tests.

Many Army aviators with diabetes can control their disease with diet and exercise. They can return to flying duties with a waiver.

Some aviators require drugs or insulin to control their diabetes and are medically terminated from aviation service. The aeromedical concerns are that this subgroup of patients is at risk for developing a variety of acute or chronic conditions that are disabling. These conditions affect the eyes, heart, kidneys, and nervous system. Patients may have difficulty remaining controlled in demanding or stressful environments. Desert Storm medical casualties, because of relapse of symptomatic diabetes, reminded us of this fact. Soldiers who have diabetes are less resistant to infection and may not heal well.

Preventive measures include maintaining good aerobic conditioning and reasonable weight control, limiting alcohol consumption, and being alert for subtle changes in health. These subtle changes may not be merely, "old age."

LTC Mason is the Director, Army Aeromedical Activity, United States Army Aeromedical Center, Fort Rucker, AL.

Office of the Aviation Medicine Consultant

The Aviation Medicine Report is a bimonthly report from the Aviation Medicine Consultant of TSG. Please forward subject matter of current aeromedical importance for editorial consideration to U.S. Army Aeromedical Center, ATTN: HSXY-ADJ, Fort Rucker, AL 36362-5333.

TEXCOM

Test Noncommissioned Officer

by Ms. Mary Mueller

The Leader's Code

I renew my status as an Army leader by what I do each day. I know my strengths and my weaknesses and I constantly strive to improve. I live by a moral code and my actions set an example for others to emulate. I know my job and carry out the spirit as well as the letter of orders.

I take the initiative and seek responsibility, and I face every situation with boldness and confidence. I evaluate every situation and estimate the best course of action. No matter what the results, I assume full responsibility for my actions.

I train my soldiers as a team, and I lead them with tact, enthusiasm, firmness, and fairness. I command and earn their confidence and loyalty; they know that I would not assign them to any duty that I would not—or could not—perform. I see that they understand their orders, and I energetically follow through to ensure that their duties are fully discharged. I keep my soldiers informed, and I make their welfare one of my primary concerns.

These things I do in fulfillment of my obligation as a noncommissioned officer in the United States Army.

—Author unknown

Operational testing requires a cohesive team of military and civilian professionals. A key player on this team is the research, development, test, and evaluation (RDTE) noncommissioned officer (NCO). Throughout the Test and Experimentation Command (TEXCOM), in nine test directorates and an experimentation center, there are more than 100 senior NCO positions for RDTE NCOs, Senior Project NCOs, or Senior Test NCOs. All NCOs are highly trained and experienced in their respective fields.

All TEXCOM NCOs assigned to an RDTE position attend the command's test officer's orientation course. This course is the only one of its kind in the Army. This course contains sufficient subject matter for award of the special qualifications identifier "R" to the NCO graduate, upon request of the commander.

The TEXCOM Aviation Test Directorate, Fort Hood, TX, has 10 such NCOs. These NCOs are key members of each test team responsible for design, development and detailed planning, execution, and reporting on an assigned test. These tests pertain to military equipment, doctrine, methods, systems, and organizations.

"It is the best job I have had since I have been in the Army," says Sergeant First Class (SFC) Victor A. Carpenter, a TEXCOM Aviation Directorate RDTE NCO. "I feel like I am making contributions to Army Aviation that will last for years to come," he stated with pride.

SFC Carpenter has been in the operational testing business since October 1989 when he was first assigned to the TEXCOM Aviation Board, Fort Rucker, AL. While assigned to the TEXCOM Aviation Board, SFC Carpenter was the test project

noncommissioned officer in charge (NCOIC) of the AH-64 Apache Longbow test.

His next major project was the light helicopter (LH) demonstration/validation (DEM/VAL). The DEM/VAL was conducted at the United Technologies' Sikorsky Aircraft plant in Stratford, CN, and the McDonnell Douglas plant at Mesa, AZ.

There were several RDTE NCOs working on the DEM/VAL. The NCOs monitored the conduct of the DEM/VAL as attack helicopter pilots performed realistic missions in highly sophisticated flight simulators of each candidate aircraft.

The data collected during the DEM/VAL were part of the resource data used by the source selection board. The data were used to determine who would be awarded the contract. The RDTE NCOs played a key role in the successful completion of the TEXCOM-conducted LH DEM/VAL.

The Boeing Sikorsky First Team was selected to continue developing the Army's LH. The LH is now called the RAH-66 Comanche.

According to SFC Carpenter, the duties of a test project NCOIC include being a data collector in charge of highly sophisticated instrumentation used to collect test data. The test project NCOIC also supervises test operations and compiles reliability, availability, and maintainability data.

"Being a test project NCOIC in TEXCOM is really demanding. It requires a lot of temporary duty away from home because you have to go where the testing is being done. During Longbow, I was gone off and on for half the year," SFC Carpenter recalls.

Besides being a TEXCOM test project NCOIC, SFC Carpenter is the maintenance coordinator and flight engineer for TEXCOM's AC680W Turbo

Living and working in the future, TEXCOM RDTE NCOs become involved with such high visibility projects as the Army's Light Helicopter program. Following the TEXCOM-conducted demonstration/ validation between two competitors, the Boeing Sikorsky First Team was selected to continue developing what is now called the RAH-66 Comanche.

Living and working in the future, TEXCOM RDTE NCOs are involved in the test planning for such projects as the MH-60K Black Hawk Special Operations helicopter. The MH-60K is scheduled for testing in 1994.

Commander. The AC680W is the only turbo commander in the Army inventory. These duties greatly increase SFC Carpenter's time away from home.

Because TEXCOM is the Army's only operational test organization, being a test project NCO in TEXCOM provides assigned NCOs with unique experiences. TEXCOM is involved with operational testing of new equipment and concepts long before they get into the Army inventory.

As an example, SFC Carpenter is also the test support coordinator. He is involved in the planning stages of tests on new special operations aircraft (the MH-60K Black Hawk and MH-47E Chinook). The MH-60K and the MH-47E are scheduled to be tested by TEXCOM in 1994.

"It is kind of neat seeing equipment that no one else has seen, like the light helicopter. There has been large amounts of publicity on the LH. But reading a magazine article or seeing it on television just can't compare with being there and participating in the hands-on testing," SFC Carpenter said.

Ms. Mueller is a Public Affairs Specialist with the TEXCOM Public Affairs Office, Fort Hood, TX.

Test and Experimentation Command

Readers may address matters concerning test and experimentation to: Headquarters, TEXCOM, ATTN: CSTE-TCS-PAO, Ft Hood, TX 76544-5065

Aviation Logistics Officer Advanced Course

by Captain Richard A. Howell

In 1988, the Department of the Army (DA) conducted an Army Aviation Logistics Study to determine the status of the aviation maintenance and logistics community. Besides the DA logistics study, the U.S. Army Combined Arms Support Command (CASCOM) agreed to open all 03A (Logistics Immaterial) positions to aviation logistics officers, 15D. This decision increases professional development opportunities available to aviation logistics officers. The CASCOM agreement requires that aviation officers receive additional multifunctional logistics training during advanced course attendance.

The U.S. Army Aviation Logistics School (USAALS), Fort Eustis, VA, addressed the findings of the logistics study by establishing the Officer Professional Development Division (OPDD) from internal assets. OPDD was established in January 1989 to develop an Aviation Logistics Officer Advanced Course (ALOAC).

The ALOAC was originally designed for aviation logistics officers. The ALOAC is a 20-week replacement course for the Aviation Officer Advanced Course (AVNOAC) taught at Fort Rucker, AL. In March 1990, the U.S. Army Training and Doctrine Command (TRADOC) and the U.S. Army Aviation Center (USAAVNC) shortened the course from 20 weeks to 5 weeks. They changed the scope of the course from a separate advanced course for 15Ds to a 5-week addition to the AVNOAC. USAALS will teach the ALOAC at Fort Eustis.

A task selection board at Fort Eustis furnished OPDD with a critical task list to develop the course. Subject matter experts from the OPDD conducted a follow-on systematic task analysis. The task list provides 30 total tasks. These tasks include 8 aviation logistics core tasks, 5 logistics management development core tasks, and 17 CASCOM-directed, multifunctional logistics core tasks. The ALOAC course development is complete. In-progress reviews are occurring within the Directorate of Training and Doctrine and the Directorate of Evaluation and Standardization.

The first 5-week ALOAC class is scheduled to begin 26 March 1992. Aviation logistics students who began the AVNOAC in October are eligible. To ensure course integration in the field, there will be four class cycles per year with a projected class size of 24 students. The course will be open to Active Army or Reserve Component aviation officers who have completed the current maintenance manager/maintenance test pilot course. In addition, officers must complete the AVNOAC at Fort Rucker, AL.

The ALOAC will provide additional professional and career development opportunities for aviation logistics officers. The ALOAC also will supply the Army with both tactically and technically trained logistics officers who can support aviation and the entire Army logistics community.

Captain Howell is assigned to the Directorate of Training and Doctrine, U.S. Army Aviation Logistics School, Fort Eustis, VA.

U.S. Army Aviation Logistics School

Readers may address matters concerning aviation logistics to: Assistant Commandant, U.S. Army Aviation Logistics School, ATTN: ATSQ-LAC, Fort Eustis, VA 23604-5415

Controlling The Storm

by First Lieutenant Timothy Engling

When flying in an environment such as that found in the deserts of Southwest Asia, pilots are comforted to hear the friendly voice of Army air traffic controllers. They also are comforted to know that they can use their navigation aids. In a land where wind and sand change the terrain daily, the services provided by air traffic control (ATC) are critical for survival.

During Desert Storm/Desert Shield, the Army's tactical air traffic controllers performed a variety of missions. These missions ranged from operating in the busiest fixed-base facilities to providing navigational support with nondirectional beacons. The First Platoon, Company A, 58th Aviation Regiment, was one of the first ATC elements deployed. Most of the First Platoon moved out on 26 August 1990 with the 101st Airborne Division. Upon arrival, the platoon was moved into the parking garage at King Fahd International Airport (KFIA). The temperature was 138 degrees in the shade.

The platoon was tasked to deploy a tactical (tac) tower team, install and operate a flight-following facility, and establish a tower at KFIA. The tac tower was controlling air traffic by 1 September 1990. Besides battling camel spiders and blowing sand, the team handled several emergencies and provided a nondirectional beacon to aid in navigation. These actions were the prelude to continuous operations for the next 7 months.

During Desert Storm/Desert Shield, the 1st Platoon controlled the highest density air traffic and supported more units than any other ATC platoon. In the dozens of missions, almost a quarter of a million movements were handled without any serious incidents.

The KFIA was still under construction, and the tower was incomplete. Platoon members worked closely with the Air Force controllers, also stationed at the airport, to install two AN/TSQ-97 man-transportable towers to establish ATC operations. The AN/TSQ-97 is equipped with the same type of radios found in Army helicopters. It is designed to control forward-landing areas and arming and refueling points. To meet the requirements of the fixed-base mission, the equipment was expanded to its limits. At 332 feet, the tower at KFIA became the tallest operating ATC tower in the world.

The flight-coordination van was sling-loaded on the observation deck of the terminal building by a CH-47 Chinook from the 7th Battalion, 101st Airborne Division. Pathfinders from the 2d Battalion, 17th Cavalry, assisted in this precise, triple-sling operation. Lifting the 5,900-pound van in the intense heat proved to be as valuable as it was difficult. The flight-coordination van doubled the line of communications range. This capability greatly enhanced the safety-of-flight of over 500 aircraft movements per day.

When the remainder of the company arrived, the King Fahd Tower was a high-density, multiservice tower. The air traffic controllers handled an extensive mixture of aircraft and controlled over 2,500 movements per day. Other air traffic controllers quickly were integrated into the operation. Eight controllers earned control tower ratings, and thirteen other platoon members received their tactical certifications. This experience proved to be invaluable for other missions requirements throughout the theater.

The tac team missions continually were being accomplished. A team controlled the airspace at the

Port of Damman, where aircraft were removed from the ships and flight-checked before departure. The platoon members also controlled the refuel site outside the airport traffic area to relieve aircraft congestion around the airport.

The 1st Platoon members were rotated to Sufla Airstrip to support the division support command airfield. At this location, a tower and a flight-following facility were placed into positions built into the side of a hill. The hill overlooked the dirt strip used to support C-130 Hercules and helicopters.

During December 1990, some platoon members remained at their tac sites and at KFIA to operate the ATC facilities, while others were moved to Dhahran on standby. Personnel in Dhahran were there long enough to endure the SCUD (SS-1 SCUD Bs—Soviet mobile or fixed surface-to-surface missile) attacks. While the platoon was being assembled to deploy to the Iraqi border, to participate in Operation Desert Storm, a SCUD missile was destroyed near the convoy.

When Desert Storm started, the 1st Platoon was moved to Log Base Charlie to prepare for the massive buildup of the ground war. A road nearby, named "Tap Line Road," was transformed into a C-130 airstrip. Army engineers built a bypass around what was to become the focal point of airborne supplies.

The platoon was tasked to set up a ground-controlled approach (GCA) radar only 6 miles from the border. This location was a concern for the platoon. However, our concerns were eased as we watched friendly aircraft continuously flying north to prepare for the ground assault. After a dozen runs and many adjustments, the antiquated GCA radar was flight-checked by the Air Force's 1467th Squadron. The GCA radar was certified to control instrument flight rule flights.

The 1st Platoon also was tasked to support the largest forward area refueling point in the history of the 101st Airborne Division. A tac tower, which had been used as the reserve tower at KFIA, was set up to control the area. The operation ended when over 600 aircraft were controlled on the first day of the 100-hour ground offensive.

During the ground war, three tac teams selected from the 1st Platoon went forward with line units deep into Iraq. A team supporting the 4th Battalion, 3d Cavalry, was broken into two smaller teams to support both ends of the flight. The team followed the armor into an airfield north of Kuwait on the Euphrates River to establish operations from a bullet-riddled tower. The teams supporting the 101st Airborne Division were air assaulted into forward operating base Cobra. Besides controlling air traffic, incoming artillery fire information was passed to aircraft carrying the air assault infantry.

Fortunately, the ground war was over very quickly. Having successfully completed our small portion of the war effort, we were ready to return home!

1LT Engling is assigned to A Company, 1-58th Aviation Regiment, Fort Campbell, KY.

U.S. Army Air Traffic Control Activity

Readers are encouraged to address matters concerning air traffic control to: Commander, USAAVNC, ATZQ-ATC-MO, Fort Rucker, AL 36362-5265

1991 Master Sergeant Selection Board Statistics

The profile analysis of the 1991 master sergeant (MSG) selection board was released in late October 1991. The overall Aviation Branch selection rate was 37.6 percent. Career Management Field (CMF) 67 selection rate was 40.8 percent. CMF 93 selection rate was 30.2 percent. Compared to the Army selection rate of 10.8 percent, Aviation Branch soldiers continue to be "Above the Best."

Here are the statistical data of selectees:

- *Education.* The following statistics pertain to the average civilian education level:

	Total Army	CMF 67	CMF 93
Primary Zone	13.5 years	12.9 years	13.7 years
Secondary Zone	13.7 years	13.9 years	14.3 years

- *Education.* The following statistics pertain to the high school graduates/general education development selection rate, no college credits:

	Total Army	CMF 67	CMF 93
Primary Zone	6.8 percent	67.8 percent	16.4 percent
Secondary Zone	2.8 percent	2.3 percent	0

- *Education.* The following statistics pertain to 2 years or more college credits selection rate:

	Total Army	CMF 67	CMF 93
Primary Zone	21.7 percent	76.9 percent	31.2 percent
Secondary Zone	18.4 percent	24.1 percent	20.0 percent

- *Photographs.* The following statistics pertain to the number of soldiers considered for promotion without current photograph:

	Total Army		Aviation Branch	
	Considered	Selected	Considered	Selected
Primary Zone	140	6	2	1
Secondary Zone	47	0	0	0

■ *Skilled Qualification Test (SQT)*. The following statistics pertain to the average SQT scores:

	Total Army	CMF 67	CMF 93
Primary Zone	85.8	85.8	86.7
Secondary Zone	88.3	90.1	93.0

■ *Age*. The following statistics pertain to the average ages, in years:

	Total Army	CMF 67	CMF 93
Primary Zone	37.5	39.5	36.8
Secondary Zone	35.1	35.3	36.5

■ *Time-in-Service*. The following statistics pertain to the number of years for time-in-service:

	Total Army	CMF 67	CMF 93
Primary Zone	17.5	19.1	17.0
Secondary Zone	15.3	16.8	15.3

■ *Time-in-Grade*. The following statistics pertain to the number of years for time-in-grade:

	Total Army	CMF 67	CMF 93
Primary Zone	6.1	5.9	5.6
Secondary Zone	4.1	3.9	3.9

The following are conclusions derived from the 1991 MSG selection board statistics:

- *Education*. Promotion potential increases with civilian education level. Having more than high school graduation is a plus, especially for selection from the secondary zone.
- *Photographs*. Without a current photograph, your chances for promotion to MSG are slim to nil.
- *Skill Qualification Test*. Aviation Branch soldiers' scores were above the Army average. High SQT scores and promotion from the secondary zone appear to be partners.
- *Age*. Age is not a significant factor for promotion. **Note**: Aviation Branch soldiers are older than the Army average.
- *Time-in-Service*. Now you know where the standard is for time-in-service. After 19 years of service, you are behind the curve for promotion to MSG.
- *Time-in-Grade*. Aviation Branch soldiers are promoted to MSG below the Army average.

Aviation Proponency Office

Readers may address matters concerning personnel notes to: Chief, Aviation Proponency Office, ATTN: ATZQ-AP, Fort Rucker, AL 36362-5000; or call DSN 558-5706/2359 or commercial 205-255-5706/2359.

U.S. Precision Helicopter Team

Team Trials

by Captain T. Cowart

The information concerning the U.S. Precision Helicopter Team (USPHT) in this issue of the *U.S. Army Aviation Digest* has been extracted from the Memorandum of Instruction published by the staff of the USPHT. The purpose is to distribute information that will help interested parties to prepare for the team trials. These trials will be conducted at Fort Rucker, AL, 10 through 23 April 1992.

Membership on the USPHT is open to all U.S. helicopter pilots, military or civilian. Up to eight crews consisting of a pilot and copilot/observer will be selected during the Fort Rucker trials. These crews will compete in the 7th World Helicopter Championship (WHC) in England in September 1992.

The U.S. Army serves as the executive agent for the Department of Defense on all matters concerning the WHC. The Helicopter Club of America (HCA) will sponsor the USPHT in the WHC. The U.S. Army Aviation Center (USAAVNC) will host the USPHT trials. The USPHT staff will conduct all subsequent training for the selected team.

The designated pilot will do all the flying during the USPHT trials and WHC competition. All designated pilots will be required to take an orientation flight on 18 April 1992. The purpose of this flight is to orient the pilots on local airspace requirements and procedures. Each civilian pilot will complete this flight using their aircraft. The civilian pilot will be accompanied by an Army instructor pilot.

Aircraft flown in the USPHT trials will be restricted to those aircraft authorized to fly with the pilot and copilot doors removed. The Army will fly either the 0H-58 Kiowa series aircraft or the UH-1H Iroquois during the USPHT trials. USAAVNC aircraft will be available for use by Army crews. Civilian competitors must provide their aircraft for use in the competition.

In both the USPHT trials and the WHC, aircraft flight control augmentation/stabilization systems and navigation systems will be disabled during the competition. The aircraft flight control augmentation/stabilization systems include the stability control augmentation system, stability augmentation system, Army facilities component system, etc. The navigation systems include the doppler, long-range navigation, global positioning system, etc.

Competitors are responsible for arranging individual billeting. Military crews should contact the Fort Rucker Billeting Office, DSN 558-3780, or commercial 205-255-3780. A list of local motels is available from the USPHT upon request.

Military crew requirements include individual aircrew training folder, individual flight records folder, unit pilot-in-command orders, current medical recommendation for flying duty, standard flight equipment, and physical training attire. Units interested in participating in the USPHT trials should select a representative crew and begin training for the competition.

A member of the USPHT staff is available through 15 February 1992 to conduct onsite briefings to any unit requesting assistance. Units interested in scheduling this briefing should contact Captain (CPT) Jim Ludowese, USPHT S-3, DSN 558-3547/3548 or commercial 205-255-3547/3548. These units will submit their request and be prepared to provide a fund cite for USPHT staff visits.

Civilian crews must coordinate overnight parking and refuel requirements with local airport managers. A list of local airports is available upon request. Civilian crews must comply with AR 95-2 to operate a civilian aircraft at a U.S. Army installation.

Civilian competitors must provide the following information to CPT Ludowese not later than 1 April 1992:

- name of crewmembers and organization,
- type aircraft to be flown,
- address and phone number for crews,
- original proof of flight insurance; name of company; policy number; policy effective date; and types of coverage and value of policy,

- anticipated arrival date, and
- any assistance needed from the USPHT staff before arrival.

All crews (military or civilian) must be present for an initial inprocessing briefing at 0900, 18 April 1992, Room 1, Building 5206 (Murphy Hall), Fort Rucker, AL. Inprocessing will begin at 0845. A $10 per person cash entry fee will be collected during inprocessing. Uniform for the briefing will be flight suit. Crews will be automatically eliminated from the competition for failing to attend the initial briefing.

The USPHT staff is prepared to help all competitors and is available to answer your questions. You may contact the USPHT at DSN 558-3547/3548 or make commercial calls to 205-255-3547/3548.

The four planned events to be conducted during the USPHT trials will be outlined in the January-February 1992 issue of the *U.S. Army Aviation Digest.*

Captain Cowart is the Public Affairs Officer for the U.S. Precision Helicopter Team, Fort Rucker, AL.

Focus on Leadership, *continued from page 1*

mission essential task list deals with leader development. It provides baseline guidance to help our directorates and aviation unit commanders in devising leader development programs that work. We must—

- First, instill the foundations of professional ethics in each student. Our code of professional ethics should build upon the personal ethics with which each student arrives. We must consistently reinforce ethical behavior in each young leader.
- Second, promote excellence in the art and science of warfighting. Leaders not only must fully understand the technical aspects of their craft, but also grasp the subtle human dynamics of combat power. They must understand that, while the weapons of the battlefield change with the progress of technology, the human element remains somewhat constant. The same human dynamics that won or lost battles a thousand years ago will still be valid principles tomorrow.
- Third, develop and execute institutional leader development programs that recognize leadership as a primary dynamic of combat power. These programs must begin with a foundation in professional ethics, excellence in the art and science of war, and a thorough understanding of the dynamics of combat power.
- Fourth, as aviation senior leaders, continue to foster young noncommissioned officers and officers after their departure from these institutions. The "zero defects" mentality, so common in the past, has been replaced by a new spirit of continual mentorship. Young leaders cannot be expected to perform perfectly at every turn. A zero defects approach to leader development encourages timidity and stifles initiative.

The Army is getting smaller; however, it will undertake a strategic mission executed by a total force of Active and Reserve Components. Most of these components will come from a sustaining base of the continental United States. Demanding global missions and the impact of new technology will require the absolute best from every aviation leader in our future force. Leader development will be a pacing activity in future training—preparing our leaders to respond to a variety of contingencies anywhere in the world.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours	Rate	Army Fatalities	Total Cost (in millions)
FY 91 (through 30 November)	7	253,618	2.76	6	$ 28.8
FY 92 (through 30 November)	4	253,618 (estimated)	1.58	4	$ 24.8

Where Have All The Leaders Gone?

by Mr. John L. Wenrich Jr.

This article examines the impact that basic leadership traits have when molding the proper attitudes in the aviation/aviator recruit.

Recently, FLIGHTFAX published the account of an Army aviator who had been reported on many operational hazard reports as having performed dangerous, unauthorized flight maneuvers. Moreover, no one took effective, corrective measures against him. Therefore, while performing one of these maneuvers, he finally killed himself and almost killed his passenger.

More recently, another class A accident occurred when an aviator attempted an unauthorized aerobatic maneuver from which he could not recover. He crashed. The aircraft was destroyed. There were no fatalities, except for one possible permanently disabled crewmember.

In the latter case, the pilot had been observed performing dangerous maneuvers on many occasions. However, he was reported only once. The unit instructor pilot verbally counseled him. After he was counseled, peers, supervisors, and subordinates observed that he continued to fly unauthorized maneuvers that exceeded performance limitations. Yet, no one made any further reports or attempts to correct him. To further compound the problem, after the crash, no one, including those who witnessed the accident, came forward to acknowledge his previous infractions.

Nearly 2 months later, a crewmember admitted the maneuver had been pilot-induced, and nothing had been wrong with the aircraft control system. Later, other members of the pilot's unit confirmed these facts.

For the most part, pilots involved in these kinds of accidents usually are considered to be "good pilots." They have excellent coordination and flying abilities. However, it takes more than being a "good pilot" to be a professional pilot and a safe one. It takes honesty, integrity, loyalty, responsibility, discipline, attention to personal appearance, sound judgment, and many other associated leadership traits, to be a safe, professional military pilot.

As we look at today's aviation society, we see we have few true leaders left. Yes, we have many good managers and many "good pilots," but yesterday's leaders are gone, and gone with them are some of our basic military ethics.

Bureaucratic managers, waiting for another promotion for maximum pension, have replaced our leaders. These are harsh words; however, as leaders we have to be honest with ourselves, our superiors, and our subordinates. But we are not being honest. We are saying what the boss wants to hear, not what really happened when we talk about safety and accident prevention.

Aviation Safety Publications

Most aviation safety publications are devoted to human factors. Rightly so, because statistics continue to indicate that human factors are the cause of most accidents (85 percent). The percentage of accidents attributed to human factors has remained constant through the years. We keep pounding the issue in every safety article and safety publication. Thousands of words reverberate the human factors

role in aviation accidents. Yet, our publications appear not to have helped the human factors problems in accidents.

The Human Mold

We have corrected materiel failures and identified maintenance-associated problems with substantial, positive results. How can we make such strides in one area and achieve such poor headway in another? The reason is that human factors are simply that—human. We can change the design and materials used in building and maintaining aircraft and equipment, but the aircrew are more complicated to change. We can change the mold of physical things, but the mold of the human being is steadfast. To change the human mold we must do so early. The old saying, "a born leader" applies only to a few; we have to train the rest. We must not assume that pinning officer bars on a soldier automatically makes him or her a leader.

The human mold, once set, mandates all future potential. It determines one's capabilities and sets one's character and attitudes. To change any of the vital functions of the human mold requires a complete overhaul or rebuilding of the human system. That task is not easy, because it involves a psychological change.

We must get down to the basics of leadership and teach these basics early, either in Officer Candidate School or in flight training. Without the basic leadership traits, no foundation to nurture or build upon exists.

Unless the initial seeds of professional ethics, motivation, and attitude are planted firmly and permanently within the new recruit, the recruit is a prime candidate for a future accident. These ethics must be molded into the highest possible standards to sustain the recruit and they must prevail in the recruit throughout the his or her career.

A lasting desire to excel as a professional officer and aviator must be created within the soldier. That desire includes a safety consciousness that remains throughout the soldier's military career in all flight duties and tasks assigned.

Leadership Traits

What basic leadership traits are we talking about? They are the same traditional terms known to all military officers. We hear them mentioned in every leadership class. They appear prominently on officer evaluation reports. These traits have become more and more critical in the human factors role in aviation safety. These traits are prerequisites for being a successful and safe aviator. A discussion of these traits follows as well as the positive results they have in decreasing the human factors percentages in aircraft accidents.

Loyalty. True loyalty requires respect. The development of respect for others is an evolutionary process. Its roots lie in self-respect. If the young aviation cadet has no self-respect when entering flight training, the cadet may never develop respect and loyalty for others. Without this trait, the cadet will never become a leader nor a professional aviator having the proper attitude on safety.

The antonym for loyalty is betrayal, and betrayal cannot be tolerated within the aviation safety program. To equate this trait with the proper attitude on safety, one must relate it to its roots—self-respect. If we are unable to instill self-esteem in the soldier and the soldier has no respect for others or the aircraft he or she flies, eventually the soldier will become a statistic.

Personal Appearance. Aviators have traditionally viewed themselves as separate and unique, an elite fraternal group with a history of high standards. Standing tall and displaying pride in personal appearance goes hand-in-hand with being a military leader. Individual and unit pride are reflections of individual and unit attention to personal appearance, presence, and comportment. This trait is addressed on officer evaluation reports.

When an aviator's appearance is sloppy, we question his or her behavior. Is it purposely self-destructive? Are there underlying unconscious needs for failure? When we see an aviator/officer who is either obese, untidy, or in desperate need of a haircut, this aviator's behavior tells us that "something is wrong." Anyone who has been around

aviation more than a day knows the standards for professional grooming. When an aviator forgets these standards, we must ask, "Why?"

A disregard for professional appearance is usually an insidious process indicating the aviator really does not care. Unprofessional appearance may represent a badge of rebellion against accepted standards. This behavior, in aviation safety terms, spells disaster.

Discipline. Discipline is more than an ability and obedience to perform a duty or task. Leaders must focus their energies toward the needs of the organization, instead of their personal needs. Leaders must instill confidence and display actions that contribute to achieving unit goals.

Safety discipline is the will to tell the truth, when the boss does not want to hear it. It is the ability to make decisions that will enhance accident prevention and to recommend the best course of action, not the easiest or most self-serving. Discipline is doing what is right, based on safety and organizational requirements and not based on personal gain.

Responsibility. Because they are always on display, leaders must seek and take responsibility for being role models. Their actions relate their true philosophy. Leaders must accept obligations and stand up for their subordinates to ensure that what their subordinates perceive is consistent with what the leaders intend to convey.

Leaders are responsible for themselves, their subordinates, and, frequently, their superiors. A close synonym for responsibility in the world of aviation is teamwork. Flight crewmembers are responsible for coordinating with each other; i.e., peers, subordinates, and superiors, to maintain the safe conduct of the mission. Accepting responsibility cohesively blends the other ingredients of leadership together. It establishes the trustworthy, reliable, and reputable traits necessary to be a professional military officer and safe aviator.

Judgment. Judgment measures the aviator's ability to perceive, balance, and distinguish relationships and alternatives. Judgment is the ability to take the initiative, discriminate accurately, behave appropriately, and develop plans and properly execute them. Judgment is simply good common sense.

In military leadership, a soldier who consistently places himself or herself in harm's way, using poor judgment, is doomed to failure. That soldier is further imperiled because he or she simply does not recognize his or her poor judgment. The soldier constantly places blame for his or her problems on persons or events beyond his or her control. In aviation safety terms, a lack of common sense forecasts a stormy future. Impaired judgment indicates a soldier's thoughts and actions are inconsistent with reality. The world of flying is a real, unforgiving world. A discerning superior suspects faulty judgment when he or she consistently observes odd or bizarre actions or speech. Officers and aviators should display good judgment in the early development stages. Without good common sense, a soldier cannot be a leader, nor can he or she maintain the attitude on safety required of a professional aviator.

Military integrity approaches a dedication to duty that is close to a religious devotion.

Integrity. Without integrity, all other traits are without direction. Are we allowing integrity to soften in today's military organization? Has this trait lost its fundamental importance?

By definition, integrity is "adherence to moral and ethical principles, soundness of character, honesty . . . to have a firm code or standard of values." Soldiers with integrity do not lie, cheat, or steal. But, in reality, integrity goes deeper than that. Military integrity approaches a dedication to duty that is close to religious devotion.

Field Manual 100-1 states, "A firm ethical base is the cornerstone of the Army." Integrity bonds

soldiers and units together, enabling them to sustain victory. If that capability is not nurtured, shaped, and maintained by leaders through proper example and standards, organizations will fail.

In essence, this fundamental trait of leadership is one of the most powerful weapons of war. Without this trait, battles are lost, and the same is true for officers and aviators. Without this trait, human factors will continue to be the main cause of accidents.

Measuring Performance

Where have the leaders gone? As technology continues to increase, we find ourselves in a changing environment. Integrity waivers with the arrival of more computer technology. Obviously, computers are useful tools for accounting, administrative tasks, and recordkeeping.

However, computer-aided tasks have caused some perfidious changes in our performance evaluation techniques at nearly all levels. Goals, milestones, and performance now are defined in terms of numbers, percentages, and ratios.

The personal side of performance evaluation, the human factor, can no longer be measured. It is losing its meaning. As the units compete to meet their goals, they naturally display their more favorable members. Statistical analyses play a role. Honest manipulation of figures, within limits, still yields an accurate picture of unit performance.

Problems arise, however, when goals become impossible to meet. Some units are greatly tempted to become more creative with figures. The numbers are faceless, nameless, and seemingly exist only on the computer paper, so why not be deceptive? The line separating reasonable numerical interpretation and deception is thin.

Frequently, we lose sight of our goals and primary mission. We are so engrossed in modern technology that we are slow to visualize an erosion of the basic leadership traits and the principles of integrity. We are losing the individual fiber that once bonded together soldiers and units. We are losing trust, honor, pride, and the principles of self-police. In the past, when a member blemished the organization by his or her substandard performance or conduct, the member was disciplined or expelled. Such performance simply was not tolerated. Without extensive intraorganizational police, the door is open for violation of integrity. The consequences are staggering in terms of poor safety standards and accidents.

Conclusion

If we must count numbers to account for what the bosses want, we must start counting the losses in leadership and address the real issue. As leaders, each and every one of us must stop procrastinating and start being honest. We must go back to the basic traits of leadership and regain our pride and honor. In today's dynamic and increasingly complex world, we must work harder to maintain these basic values. We must again start to make leaders out of men so we will not have to ask, "Where have all the leaders gone?"

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Aviation Branch Safety Office

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Engineer Construction Waivers

by Lieutenant Colonel Richard G. Carlson
and
Mr. Walter Perron

When was the last time you noticed or were involved with a construction project at an Army Aviation facility? As you taxied out to takeoff, were you cleared around work on a new taxiway or did you see a new antenna being built? Have you ever wondered how that particular construction project was approved? Did you know how the construction would impact the operations of the facility? Did you know what waivers were needed to get the project started or completed?

Construction at or near an airfield is a complex, detailed undertaking. This construction can interfere or encroach upon an area, parcel of airspace or imaginary surface that has been developed and designated to ensure safety of aviation activities. The safety of aviation activities include unimpeded operation of the facility's navigational aids (NAVAIDs).

Because of the severe loading caused by continued aircraft operations and, of late, the potential operations of aircraft with heavy combat loads, the construction standards of runways, taxiways, and parking ramps are more stringent than the standards used to construct roads and highways.

In a more simplified world, all construction runs smoothly. The impact on our aviation operations is minute. Yet, we do not live in that world! We operate in a dynamic environment. Sometimes, unqualified or uninformed individuals or elements make decisions or plan projects. The results of these efforts can impact flight operations safety, or necessitate an engineer construction waiver to complete the project.

Recent work by U.S. Army Aeronautical Services Agency (USAASA), Corps of Engineers, and U.S. Army Aviation Center resulted in the preparation of new guidance to centralize waiver authority. These waivers are for construction that possibly could compromise a standard or impact operations at the aviation facility.

This guidance is to be applied by engineer master planners and aviation operations planners when planning for air operations real property or land use and construction near an aviation activity.

The Director, USAASA, approves waivers for all airfield engineering criteria. The installation airfield plan, a part of the installation master plan, will require USAASA approval before integration into the installation master plan. All military construction project sites at or near an air operational activity will require USAASA approval before initiation of programming actions. USAASA will use the Transportation Systems Mandatory Center of Expertise, U.S. Army Corps of Engineers, to provide the consolidated engineer input on all airfield plans and waivers.

The installation aviation representative and the Directorate of Engineering and Housing master planner jointly will prepare waivers and submit requests through appropriate channels. They also

will maintain a complete record of all waivers requested, approved, and disapproved.

Each request for a waiver, as a minimum, should—

- cite the specific standard or criterion to be waived by paragraph, page, and document.
- demonstrate that the modification to the airfield design standards will provide an acceptable level of safety, economics, durability, and quality for meeting the Army mission. This information should include references to special studies made to support the decision action.
- state reason(s) for the waiver including specific impacts upon assigned mission, safety, and/or environment. Specific justification of waivers to criteria and allowances should be included when—
  - specific site conditions (physical and functional constraints) make compliance to existing criteria impractical or unsafe. *Examples*: Hangar space must be provided for all aircraft because of recurring adverse weather conditions. Hangar space closer and within the runway clearances must be expanded because of lack of land. Class A clearances must be maintained, although support of Class B aircraft operations is over 10 percent of the airfield operations.
  - deviation from criteria falls within a reasonable margin of safety and does not impair construction of long-range facility requirements. *Example*: Security fencing must be located around the airfield and within established clearance areas.
  - construction that does not conform to criteria remains the only alternative to meet mission requirements. Evidence of analysis and efforts taken to follow criteria and standards should be documented and referenced.
- include information on the following existing or proposed operational factors used in the assessment:
  - Mission urgency.
  - All aircraft by type and operational characteristics.
  - Density of aircraft operations at each air operational facility.
  - Facility capability (visual flight rules or instrument flight rules).
  - Use of own power parking versus manual parking.
  - Safety of operations (risk assessment).
  - Existing NAVAIDs.
- include record of all alternatives considered and their consequence, the necessary mitigative efforts to be taken, and the evidence of coordination.

With these new procedures in place, the Army can better serve the aviation community and protect a valuable resource. The Army also can have a central repository for all data on airfields.

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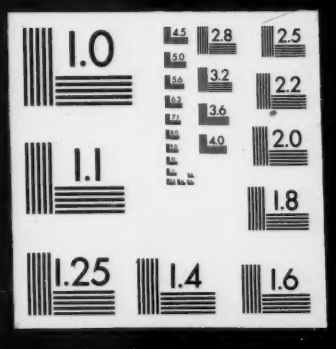
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